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OM protein - protein search, using sw model

Run on: March 19, 2003, 12:06:07 ; Search time 36 Seconds
(without alignments)
103.639 Million cell updates/sec

Title: US-09-508-083-1
Perfect score: 144
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
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2: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
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21: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 144 | 100.0 | 28 | 15 | AAR45437 | Insulinotropin der |
| 2 | 144 | 100.0 | 28 | 15 | AAR63249 | Insulinotropin (GL |
| 3 | 144 | 100.0 | 28 | 17 | AAW16669 | Tetradecanoylated |
| 4 | 144 | 100.0 | 28 | 17 | AAW02644 | Glucagon-like pept |
| 5 | 144 | 100.0 | 28 | 17 | AAR98950 | Target peptide (GL |
| 6 | 144 | 100.0 | 28 | 20 | AAW93527 | Peptide used in tr |
| 7 | 144 | 100.0 | 28 | 21 | AAB07295 | Modified Glucagon |
| 8 | 144 | 100.0 | 28 | 21 | AAY78952 | Glucagon-like pept |
| 9 | 144 | 100.0 | 28 | 22 | AAE09258 | Human glucagon-lik |
| 10 | 144 | 100.0 | 28 | 22 | AAG63270 | Amino acid sequenc |
| 11 | 144 | 100.0 | 28 | 22 | AAG63273 | An insoluble gluca |
| 12 | 144 | 100.0 | 28 | 23 | ABB07145 | Glucagon-like pept |
| 13 | 144 | 100.0 | 28 | 23 | AAM50395 | Glucagon-like pept |
| 14 | 144 | 100.0 | 29 | 13 | AAR24524 | GLP-1 derivative. |
| 15 | 144 | 100.0 | 29 | 15 | AAR45436 | Insulinotropin der |
| 16 | 144 | 100.0 | 29 | 15 | AAR63248 | Insulinotropin (GL |
| 17 | 144 | 100.0 | 29 | 16 | AAR69075 | Glycogen Like Pept |
| 18 | 144 | 100.0 | 29 | 17 | AAR98964 | GLP1(7-35). Not s |
| 19 | 144 | 100.0 | 29 | 19 | AAW63181 | GLP-1(7-35). Homo |
| 20 | 144 | 100.0 | 29 | 19 | AAW50904 | Glucagon-like pept |
| 21 | 144 | 100.0 | 29 | 20 | AAY34197 | GLP-1 mutant pepti |
| 22 | 144 | 100.0 | 29 | 20 | AAY18038 | GLP-1(7-37)OH deri |
| 23 | 144 | 100.0 | 29 | 21 | AAB11890 | Shelf-stable gluca |
| 24 | 144 | 100.0 | 29 | 21 | AAY53279 | Glucagon-like pept |
| 25 | 144 | 100.0 | 29 | 21 | AAY78951 | Glucagon-like pept |
| 26 | 144 | 100.0 | 29 | 22 | AAE09259 | Human glucagon-lik |
| 27 | 144 | 100.0 | 29 | 22 | AAG63274 | An insoluble gluca |
| 28 | 144 | 100.0 | 29 | 23 | AAM50394 | Glucagon-like pept |
| 29 | 144 | 100.0 | 30 | 15 | AAR45435 | Insulinotropin der |
| 30 | 144 | 100.0 | 30 | 15 | AAR63247 | Insulinotropin (GL |
| 31 | 144 | 100.0 | 30 | 16 | AAR69063 | Amidated Glucagon |
| 32 | 144 | 100.0 | 30 | 16 | AAR79809 | Glucagon like pept |
| 33 | 144 | 100.0 | 30 | 16 | AAR80548 | Human glucagon lik |
| 34 | 144 | 100.0 | 30 | 17 | AAR98956 | Target peptide (GL |
| 35 | 144 | 100.0 | 30 | 17 | AAR98975 | GLP1(7-35)-NH2. S |
| 36 | 144 | 100.0 | 30 | 17 | AAR98978 | GLP1(7-35)-Met. S |
| 37 | 144 | 100.0 | 30 | 18 | AAW16383 | Glucagon-like pept |
| 38 | 144 | 100.0 | 30 | 19 | AAW63288 | Glucagon-like pept |
| 39 | 144 | 100.0 | 30 | 19 | AAW63182 | GLP-1(7-36). Homo |
| 40 | 144 | 100.0 | 30 | 19 | AAW50906 | Glucagon-like pept |
| 41 | 144 | 100.0 | 30 | 20 | AAY80307 | Glucagon peptide-1 |
| 42 | 144 | 100.0 | 30 | 20 | AAY80308 | Glucagon peptide-1 |
| 43 | 144 | 100.0 | 30 | 20 | AAY80316 | Glucagon peptide-1 |
| 44 | 144 | 100.0 | 30 | 20 | AAY42935 | Glucagon-like pept |
| 45 | 144 | 100.0 | 30 | 20 | AAY27374 | Glucagon-like pept |

ALIGNMENTS

RESULT 1
AAR45437
ID AAR45437 standard; protein; 28 AA.
XX
AC AAR45437;
XX
DT 27-JUN-1994 (first entry)
XX
DE Insulinotropin derivative.
XX
KW Insulinotropic; activity; enhancing insulin activity; treatment;
KW Type II diabetes.
XX
OS Synthetic.
XX
PN WO9325579-A.
XX
PD 23-DEC-1993.
XX
PF 14-APR-1993; 93WO-US03388.
XX
PR 15-JUN-1992; 92US-0899073.
XX
PA (PFIZ ) PFIZER INC.
XX
PI Andrews GC, Daumy GO, Francoeur ML, Larson ER;
XX
DR WPI; 1994-007457/01.
XX
PT New derivs. of glucagon-like peptide 1 and insulinotropin - used for
PT enhancing insulin action in a mammal, partic. by iontophoretic admin.
XX
PS Claim 3; Page 20; 32pp; English.

```
XX
CC   The sequence is that of a derivative of insulinotropin which
CC   has insulinotropic activity and is useful for enhancing insulin
CC   action in a mammal, partic. for treating Type II diabetes
CC   (claimed). It is partic. suited for delivery to a mammal by
CC   ionophoresis.
XX
SQ   Sequence   28 AA;

  Query Match            100.0%;  Score 144;  DB 15;  Length 28;
  Best Local Similarity  100.0%;  Pred. No. 2.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 2
AAR63249
ID   AAR63249 standard; peptide; 28 AA.
XX
AC   AAR63249;
XX
DT   02-MAY-1995  (first entry)
XX
DE   Insulinotropin (GLP-1(7-34)) for use in treating NIDDM.
XX
KW   insulinotropic activity; GLP-1; glucagon-like protein 1; NIDDM;
KW   non-insulin dependent diabetes mellitus; insulintropin; truncated.
XX
OS   Synthetic.
XX
PN   EP619322-A.
XX
PD   12-OCT-1994.
XX
PF   10-FEB-1994;   94EP-0300981.
XX
PR   07-APR-1993;   93US-0044133.
XX
PA   (PFIZ ) PFIZER INC.
PA   (PFIZ ) PFIZER CORP.
XX
PI   Danley DE,  Gelfand RA,  Geoghegan KF,  Kim Y,  Lambert WJ;
PI   Qi H,  Oih,  Hong Q,  Yesook K;
XX
DR   WPI; 1994-311774/39.
XX
PT   Treatment of non-insulin dependent diabetes mellitus - using a
PT   glucagon-like peptide 1 or deriv. with prolonged action for
PT   sustained glycaemic control
XX
PS   Claim 2; Page 46; 70pp; English.
XX
CC   This peptide is GLP-1(7-34) [GLP = glucagon-like peptide], a truncated
CC   deriv. of GLP-1. GLP-1 and its deriv.s are useful in the treatment of
CC   Non-Insulin Dependent Diabetes Mellitus (NIDDM). During processing in
CC   the pancreas and intestine, GLP-1 (AAR63245) is converted to a 31 amino
CC   acid peptide having amino acids 7-37 of GLP-1, alternatively referred
CC   to as insulinotropin. GLP-1(7-37) has insulinotropic activity, ie. it
CC   is able to stimulate, or cause to be stimulated, the synthesis of the
CC   hormone insulin. Other derivs. of GLP-1 are shown in AAR63246-51. It
CC   has been discovered that prolonged plasma elevations of GLP-1, and
CC   related polypeptides, are necessary during the meal and beyond to
CC   achieve sustained glycemic control in patients with NIDDM. The invention
CC   provides a compsn. that has prolonged action after each administration.
XX
SQ   Sequence   28 AA;

  Query Match            100.0%;  Score 144;  DB 15;  Length 28;
  Best Local Similarity  100.0%;  Pred. No. 2.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 3
AAW16669
ID   AAW16669 standard; peptide; 28 AA.
XX
AC   AAW16669;
XX
DT   22-JUL-1997  (first entry)
XX
DE   Tetradecanoylated glucagon like peptide 1 derivative.
XX
KW   Hormone; derivative; glucagon like peptide 1; modification;
KW   lipophilic substituent; tetradecanoyl; protracted; action;
KW   profile; GLP-1.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   28
FT                   /note="Lys[Nepsilon-gamma-Glu(Nalpha-tetradecanoyl)
FT                         -OH]-COOH"
XX
PN   WO9629342-A1.
XX
PD   26-SEP-1996.
XX
PF   18-MAR-1996;   96WO-DK00106.
XX
PR   17-MAR-1995;   95DK-0000275.
XX
PA   (NOVO ) NOVO-NORDISK AS.
XX
PI   Halstrom JB,  Hansen PH,  Havelund S,  Jonassen I;
PI   Kurtzhals P;
XX
DR   WPI; 1996-443133/44.
XX
PT   New peptide hormone derivs. - having a lipophilic substit.
PT   introduced into the N-terminal or C-terminal for a protracted
PT   profile of action.
XX
PS   Disclosure; Page 5; 21pp; English.
XX
CC   The present sequence is a pharmacologically active peptide hormone
CC   (PH) derivative, where the parent PH, glucagon like peptide 1,
CC   has been modified by introducing a carboxy-terminal lipophilic
CC   substituent, specifically tetradecanoyl, giving it a protracted
CC   profile of action in the body compared to the parent PH.
XX
SQ   Sequence   28 AA;

  Query Match            100.0%;  Score 144;  DB 17;  Length 28;
  Best Local Similarity  100.0%;  Pred. No. 2.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 4
AAW02644
ID   AAW02644 standard; Peptide; 28 AA.
XX
AC   AAW02644;
XX
DT   24-JAN-1997  (first entry)
XX
```

DE Glucagon-like peptide-1 residues 7-34.
XX
KW GLP-1 (7-34); thixotropic; insulinotropic; diabetes; treatment;
KW phenol; alcohol; aromatic; gel; protracted release.
XX
OS Synthetic.
XX
PN WO9620005-A1.
XX
PD 04-JUL-1996.
XX
PF 21-DEC-1995; 95WO-DK00516.
XX
PR 23-DEC-1994; 94DK-0001478.
XX
PA (NOVO ) NOVO-NORDISK AS.
XX
PI Jensen E, Jorgensen KH;
XX
DR WPI; 1996-321644/32.
XX
PT New compsns. contg. glucagon-like peptide-1 - comprising gels for
PT the protracted released of GLP-1 in the treatment of diabetes
PT mellitus.
XX
PS Disclosure; Page 3; 16pp; English.
XX
CC The present sequence is that of residues 7-34 of glucagon-like peptide-1
CC (GLP-1 (7-34)). Compsns. contg. a GLP-1 cpd. and a phenolic and/or an
CC alcoholic aromatic cpd. result in a thixotropic gel showing a protracted
CC release of the active GLP-1 cpd.. The compsns. can be used as
CC insulinotropic agents in the treatment of diabetes. In partic. GLP-1
CC (7-37) is used in the examples of the invention (sequence not given).
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 144; DB 17; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

RESULT 5
AAR98950
ID AAR98950 standard; peptide; 28 AA.
XX
AC AAR98950;
XX
DT 15-JAN-1997 (first entry)
XX
DE Target peptide (GLP1(7-34)) used in fusion protein construct.
XX
KW Fusion protein construct; isolation; purification;
KW growth hormone releasing factor; glucagon-like peptide 1;
KW parathyroid hormone; inclusion body; carbonic anhydrase.
XX
OS Synthetic.
XX
PN WO9617942-A1.
XX
PD 13-JUN-1996.
XX
PF 07-DEC-1995; 95WO-US15800.
XX
PR 07-DEC-1994; 94US-0350530.
XX
PA (BION-) BIONEBRASKA INC.
XX
PI De LA MOTTE RS, Henriksen DB, Holmquist B, Manning SD;
PI Partridge BE, Stout JS, Wagner FW;
XX
DR WPI; 1996-287186/29.
XX
PT Isolation and purificn of peptide(s) from fusion protein constructs
PT - which include a carbonic anhydrase and a variable fused
PT polypeptide
XX
PS Claim 18; Page 47; 67pp; English.
XX
CC A new method for the isolation and/or purification of a recombinant
CC peptide employs a fusion protein construct (FPC) comprising a
CC carbonic anhydrase and a variable fused polypeptide containing a
CC target peptide. The method comprises precipitating either the FPC or
CC a fragment of the FPC including the carbonic anhydrase. An
CC alternative method of producing the peptide comprises expressing the
CC FPC as part of an inclusion body. The target peptides of the FPC are
CC derived from growth hormone releasing factor (GRF), glucagon-like
CC peptide 1 (GLP1) or parathyroid hormone (PTH). This sequence
CC corresponds to amino acids 7-34 of GLP1.
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 144; DB 17; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

RESULT 6
AAW93527
ID AAW93527 standard; peptide; 28 AA.
XX
AC AAW93527;
XX
DT 15-JUN-1999 (first entry)
XX
DE Peptide used in treatment of diabetes mellitus and obesity.
XX
KW Diabetes mellitus; obesity; therapy; treatment; hormone; cAMP; cGMP;
KW cyclic adenosine monophosphate; cyclic nucleotide degradation;
KW cyclic guanosine monophosphate; antidiabetic; hypoglycaemic; acromegaly;
KW anti-obesity; non-insulin-dependent; mature onset; pancreatic disease;
KW secondary hyperglycemia; pancreatitis; pancreasectomy; pheochromocytoma;
KW hemochromatosis; endocrine disease; Cushing's syndrome; iatrogenic;
KW hyperthyreosis; benzothiadiazine saliuretic; diazoxide; glucocorticoid;
KW pathological glucose tolerance; hyperglycemia, dyslipoproteinemia;
KW hyperlipoprotenemia; hypotension.
XX
OS Synthetic.
XX
PN WO9914239-A1.
XX
PD 25-MAR-1999.
XX
PF 11-SEP-1998; 98WO-EP05804.
XX
PR 11-MAR-1998; 98DE-1010515.
PR 12-SEP-1997; 97DE-1040081.
PR 23-DEC-1997; 97DE-1057739.
XX
PA (FORS/) FORSSMANN W G.
XX
PI Adermann K, Forssmann WG, Meyer M, Richter R;
XX
DR WPI; 1999-244026/20.
XX
PT Composition containing stimulators of cyclic nucleotide
PT monophosphate
XX
PS Claim 30; Page 18; 38pp; German.

XX
CC This invention describes a composition containing at least two of the
CC components (a) hormone that stimulates production of cyclic adenosine
CC monophosphate (cAMP) (b) inhibitor of cyclic nucleotide degradation
CC and (c) hormone that stimulates production of cyclic guanosine
CC monophosphate (cGMP). This composition has antidiabetic, hypoglycaemic,
CC and anti-obesity activity. The product described in the invention
CC can be used for treatment of (i) diabetes mellitus (non-)insulin
CC dependent or mature onset diabetes, (ii) secondary hyperglycemia
CC associated with pancreatic disease (chronic pancreatitis, pancreasectomy
CC or hemochromatosis) or endocrine disease (acromegaly, Cushing's
CC syndrome, pheochromocytoma or hyperthyreosis), (iii) iatrogenic
CC hyperglycemia (e.g. caused by benzothiadiazine saliuretics, diazoxide or
CC glucocorticoids), (iv) pathological glucose tolerance, (v) hyperglycemia,
CC (vi) dyslipoproteinemia, (vii) obesity, (viii) hyperlipoprotenemia
CC and/or hypotension.
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 144; DB 20; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

RESULT 7
AAB07295
ID AAB07295 standard; peptide; 28 AA.
XX
AC AAB07295;
XX
DT 17-JAN-2001 (first entry)
XX
DE Modified Glucagon Like Peptide (GLP) # 5.
XX
KW Peptide amidation; C-terminal alpha-carboxamide; GLP; clostripain;
KW amidative cleavage; clostridopeptidase B; glucagon like peptide.
XX
OS Unidentified.
XX
PN WO200028067-A1.
XX
PD 18-MAY-2000.
XX
PF 05-NOV-1999; 99WO-US26060.
XX
PR 06-NOV-1998; 98US-0107311.
PR 16-DEC-1998; 98US-0212663.
XX
PA (BION-) BIONEBRASKA INC.
XX
PI Dormady D, Stout JS, Strydom DJ, Holmquist B, Wagner FW;
XX
DR WPI; 2000-376575/32.
XX
PT Preparation of peptide with C-terminal alpha-carboxamide residue, e.g.
PT growth hormone releasing factors comprises treating substrate with
PT ammonia in presence of clostripain
XX
PS Example 1; Page 16; 48pp; English.
XX
CC The present sequence is a modified Glucagon Like Peptide (GLP) fragment.
CC This sequence is composed of residues 7 to 34 of GLP, and was produced
CC by attempted clostripain catalysed amidation of another modified GLP
CC fragment (AAB07291) at pH 7.9. Hydrolysis at Lys34 occured to produce the
CC present sequence. The expected product would have had a C-terminal
CC alpha-carboxamide residue. The peptide of AAB07291 was treated with an
CC ammonia reagent and clostripain (also known as clostridopeptidase B).
CC Clostripain is an extracellular thiol endoprotease from Clostridia.
CC Clostripain cleaves arginine containing peptides amidatively at an
CC Arg-Xaa peptide bond.
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 144; DB 21; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

RESULT 8
AAY78952
ID AAY78952 standard; peptide; 28 AA.
XX
AC AAY78952;
XX
DT 05-JUN-2000 (first entry)
XX
DE Glucagon-like peptide-1 fragment GLP-1 (7-34).
XX
KW Glucagon-like peptide-1; GLP-1; insulin producing cell; insulin; amylase;
KW diabetes mellitus type 1; human; livestock; pet.
XX
OS Homo sapiens.
XX
PN WO200009666-A2.
XX
PD 24-FEB-2000.
XX
PF 10-AUG-1999; 99WO-US18099.
XX
PR 10-AUG-1998; 98US-0095917.
XX
PA (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Egan J, Perfetti R, Passaniti A, Greig N, Holloway H;
XX
DR WPI; 2000-205999/18.
XX
PT Differentiation of non-insulin producing cells into insulin-producing
PT cells by glucagon-like peptide-1 or extendin-4, used to treat diabetes
PT mellitus
XX
PS Disclosure; Page 16; 119pp; English.
XX
CC This sequence represents a glucagon-like peptide-1 (GLP-1) fragment.
CC GLP-1 is a hormone normally secreted by neuroendocrine cells of the gut,
CC in response to food. GLP-1 fragments or Extendin-4 growth factor
CC fragments can be used in the production of a population of
CC insulin-producing cells from a population of non-insulin producing cells.
CC The methods may also be used to promote pancreatic amylase producing
CC cells to produce both insulin and amylase. The methods are used to treat
CC diabetes mellitus (type 1) in humans, domesticated animals, livestock and
CC pets.
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 144; DB 21; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

RESULT 9
AAE09258
ID AAE09258 standard; peptide; 28 AA.
XX

```
AC   AAE09258;
XX
DT   15-NOV-2001  (first entry)
XX
DE   Human glucagon-like peptide-1 related molecule (GLP)-1 derivative #5.
XX
KW   Human; glucagon-like peptide-1 related molecule; GLP; GLP crystal;
KW   manufacturing process; pharmaceutical formulation; therapy; diabetes;
KW   obesity.
XX
OS   Homo sapiens.
OS   Synthetic.
XX
PN   US2001014666-A1.
XX
PD   16-AUG-2001.
XX
PF   11-DEC-1998;   98US-0209799.
XX
PR   11-DEC-1998;   98US-0209799.
XX
PA   (HERM/) HERMELING R N.
PA   (HOFF/) HOFFMANN J A.
PA   (NARA/) NARASIMHAN C.
XX
PI   Hermeling RN,  Hoffmann JA,  Narasimhan C;
XX
DR   WPI; 2001-529113/58.
XX
PT   Glucagon-like peptide-1 crystals for treating diabetes are prepared
PT   from mother liquor containing glucagon-like-peptide-1 related molecules
PT   dissolved in buffered solution and alcohol  -
XX
PS   Disclosure; Page 11; 17pp; English.
XX
CC   The present sequence is a human glucagon-like peptide-1 related molecule
CC   (GLP)-1 derivative. The single tetragonal flat rod-shaped or plate-like
CC   crystals of a GLP are prepared from a crystallisation solution containing
CC   a GLP, a buffering agent, an alcohol or a mono or disaccharide and
CC   optionally ammonium sulphate or zinc. The GLP crystals are used in
CC   manufacturing process, in pharmaceutical formulations for treating
CC   diabetes, obesity or related conditions in mammals.
XX
SQ   Sequence   28 AA;

  Query Match             100.0%;  Score 144;  DB 22;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 2.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 10
AAG63270
ID   AAG63270 standard; protein; 28 AA.
XX
AC   AAG63270;
XX
DT   01-OCT-2001  (first entry)
XX
DE   Amino acid sequence of glucagon-like peptide 1 (GLP-1) analogue.
XX
KW   Glucagon-like peptide 1; GLP-1; soluble GLP-1.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 28
FT                   /note= "this residue is Lys-COOH or Lys-Gly-COOH"
XX
PN   WO200155213-A2.
XX
PD   02-AUG-2001.
XX
PF   16-JAN-2001; 2001WO-US00010.
XX
PR   27-JAN-2000; 2000US-0178438.
PR   09-AUG-2000; 2000US-0224058.
XX
PA   (ELIL ) LILLY & CO ELI.
XX
PI   Prouty WFJ,  Rinella JVJ;
XX
DR   WPI; 2001-476192/51.
XX
PT   Preparing a Glucagon-like peptide 1 compound soluble in aqueous
PT   solution at pH 7.4, comprises dissolving the insoluble form in aqueous
PT   base or acid and neutralizing the solution  -
XX
PS   Disclosure; Page 12; 49pp; English.
XX
CC   The present sequence represents a glucagon-like peptide 1 (GLP-1)
CC   analogue. The specification describes a method for preparing a GLP-1
CC   compound that is soluble in aqueous form at pH 7.4 from a GLP-1
CC   compound that is insoluble in aqueous form at pH 7.4. The method
CC   comprises dissolving the insoluble compound in aqueous base or acid;
CC   neutralizing the GLP-1 solution to a pH at which no amino acid
CC   racemisation of the GLP-1 compound occurs; and isolating GLP-1 from
CC   the neutralized solution. The method is used to prepare a soluble form
CC   of a GLP-1 compound. The soluble form of GLP-1 is physiologically active.
XX
SQ   Sequence   28 AA;

  Query Match             100.0%;  Score 144;  DB 22;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 2.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 11
AAG63273
ID   AAG63273 standard; protein; 28 AA.
XX
AC   AAG63273;
XX
DT   01-OCT-2001  (first entry)
XX
DE   An insoluble glucagon-like peptide 1 (GLP-1) compound.
XX
KW   Glucagon-like peptide 1; GLP-1; soluble GLP-1.
XX
OS   Synthetic.
XX
PN   WO200155213-A2.
XX
PD   02-AUG-2001.
XX
PF   16-JAN-2001; 2001WO-US00010.
XX
PR   27-JAN-2000; 2000US-0178438.
PR   09-AUG-2000; 2000US-0224058.
XX
PA   (ELIL ) LILLY & CO ELI.
XX
PI   Prouty WFJ,  Rinella JVJ;
XX
DR   WPI; 2001-476192/51.
XX
PT   Preparing a Glucagon-like peptide 1 compound soluble in aqueous
PT   solution at pH 7.4, comprises dissolving the insoluble form in aqueous
PT   base or acid and neutralizing the solution  -
```

XX
PS Claim 4; Page 38; 49pp; English.
XX
CC The present sequence represents an insoluble glucagon-like peptide 1
CC (GLP-1). The specification describes a method for preparing a GLP-1
CC compound that is soluble in aqueous form at pH 7.4 from a GLP-1
CC compound that is insoluble in aqueous form at pH 7.4. The method
CC comprises dissolving the insoluble compound in aqueous base or acid;
CC neutralizing the GLP-1 solution to a pH at which no amino acid
CC racemisation of the GLP-1 compound occurs; and isolating GLP-1 from
CC the neutralized solution. The method is used to prepare a soluble form
CC of a GLP-1 compound. The soluble form of GLP-1 is physiologically active.
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 144; DB 22; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

RESULT 12
ABB07145
ID ABB07145 standard; peptide; 28 AA.
XX
AC ABB07145;
XX
DT 13-MAR-2002 (first entry)
XX
DE Glucagon-like peptide-1 (GLP-1) fragment (residues 7-34).
XX
KW GLP-1; glucagon-like-peptide-1; growth-hormone releasing factor; GRF;
KW parathyroid hormone; PTH; antidiabetic; anoretic; cerebroprotective;
KW vasotropic; anti-inflammatory; antiarteriosclerotic; hepatotropic;
KW tranquilizer; vulnerary; osteopathic; pharmaceutical.
XX
OS Homo sapiens.
XX
PN WO200187322-A2.
XX
PD 22-NOV-2001.
XX
PF 17-MAY-2001; 2001WO-US15872.
XX
PR 17-MAY-2000; 2000US-205377P.
PR 19-MAY-2000; 2000US-205262P.
XX
PA (BION-) BIONEBRASKA INC.
XX
PI Holmquist B, Dormady DC;
XX
DR WPI; 2002-082941/11.
XX
PT New peptide formulation for treating disease e.g. diabetes, obesity,
PT ischemia comprises peptides, an acid having a specified dissociation
PT constant and an excipient -
XX
PS Disclosure; Page 10; 34pp; English.
XX
CC The invention provides a pharmaceutical composition that comprises a
CC molecule selected from a glucagon-like-peptide-1 (GLP-1) molecule, growth
CC -hormone releasing factor (GRF) molecule or a parathyroid hormone (PTH)
CC molecule. The composition further includes a weak acid such as acetic
CC acid. The pH of the composition is 3 - 5. The composition can be used for
CC the treatment of a disease or condition selected from diabetes, excess
CC appetite, obesity, stroke, ischemia, reperfusion injury, disturbed
CC glucose metabolism, surgery, coma, shock, gastrointestinal disease,
CC digestive hormone disease, atherosclerosis, vascular disease, gestational
CC diabetes, liver disease and cirrhosis, glucocorticoid excess, Cushing's
CC disease, the presence of activated counter regulatory hormones that occur
CC after trauma or a disease, hypertriglyceridemia, chronic pancreatitis,
CC the need for parenteral feeding, and a catabolic state following surgery
CC or injury. The present sequence represents a GLP-1 peptide fragment.
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 144; DB 23; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

RESULT 13
AAM50395
ID AAM50395 standard; Peptide; 28 AA.
XX
AC AAM50395;
XX
DT 18-FEB-2002 (first entry)
XX
DE Glucagon-like peptide 1 (7-34).
XX
KW Glucagon-like peptide 1 (7-34); GLP-1 (7-34); insulinotropin;
KW human; glycaemia; antidiabetic; insulinotropic; NIDDM;
KW non-insulin dependent diabetes mellitus; therapy.
XX
OS Homo sapiens.
OS Synthetic.
XX
PN US6284727-B1.
XX
PD 04-SEP-2001.
XX
PF 07-JUN-1995; 95US-0472349.
XX
PR 25-JAN-1994; 94US-0181655.
PR 07-APR-1993; 93US-0044133.
XX
PA (SCIO-) SCIOS INC.
XX
PI Kim Y, Lambert WJ, Qi H, Gelfand RA, Geoghegan KF, Danley DE;
XX
DR WPI; 2002-033119/04.
XX
PT Compositions useful in treatment of non-insulin dependent diabetes
PT mellitus comprises peptides and polymer e.g. polysaccharide or
PT vegetable oil -
XX
PS Claim 1(i)(c); Column 47; 42pp; English.
XX
CC The present sequence is that of amino acids 7-34 of glucagon-like
CC peptide 1 (GLP-1). During processing in the pancreas and
CC intestine, 37-amino acid GLP-1 is converted to 31-amino acid
CC GLP-1 (7-37). This peptide has insulinotropic activity, i.e. it is
CC able to stimulate, or cause to be stimulated, the synthesis or
CC expression of insulin. GLP-1, GLP-1 (7-37) and their derivatives,
CC including the present peptide, are used in claimed compositions for
CC prolonged administration in the treatment of non-insulin dependent
CC diabetes mellitus. The compositions, which also include a polymer
CC such as a polysaccharide or vegetable oil, enhance insulin action
CC to achieve sustained glycaemic control.
XX
SQ Sequence 28 AA;

Query Match 100.0%; Score 144; DB 23; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||

```
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 14
AAR24524
ID   AAR24524 standard; peptide; 29 AA.
XX
AC   AAR24524;
XX
DT   02-DEC-1992  (first entry).
XX
DE   GLP-1 derivative.
XX
KW   Maturity onset diabetes mellitus; MODM; pathogenesis.
XX
OS   Homo sapiens.
XX
PN   US5118666-A.
XX
PD   02-JUN-1992.
XX
PF   05-MAY-1986;   86US-0859928.
XX
PR   05-MAY-1986;   86US-0859928.
PR   26-JAN-1988;   88US-0148517.
PR   01-JUN-1990;   90US-0532111.
XX
PA   (GEHO ) GEN HOSPITAL CORP.
XX
PI   Habener JF;
XX
DR   WPI; 1992-208235/25.
XX
PT   New glucagon-like peptide 1 derivatives - have insulinotropic
PT   activity and are used to treat Diabetes mellitus
XX
PS   Claim 1; Page 20 and Fig 1; 16pp; English.
XX
CC   The sequence given is derived from glucagon-like peptide 1 (GLP-1)
CC   and has a higher insulinotropic activity than GLP-1 (1-36) and GLP-1
CC   (1-37).  The peptide may be modified to a acid addn. or carboxylic
CC   acid addn.salt or lower alkyl ester and amide (lower (di)alkyl amide)
CC   derivative.  These modified derivatives have the same insulinotropic
CC   activity as the original GLP-1 derivative.  These peptides are used
CC   in the treatment of maturity onset diabetes mellitus (MODM).  They
CC   may also be used in the study of MODM pathogenesis.  Dosages can be
CC   administered intravenously, intramuscularly or subcutaneously.
XX
SQ   Sequence   29 AA;

  Query Match             100.0%;  Score 144;  DB 13;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 15
AAR45436
ID   AAR45436 standard; protein; 29 AA.
XX
AC   AAR45436;
XX
DT   27-JUN-1994  (first entry)
XX
DE   Insulinotropin derivative.
XX
KW   Insulinotropic; activity; enhancing insulin activity; treatment;
KW   Type II diabetes.
XX
OS   Synthetic.
XX
PN   WO9325579-A.
XX
PD   23-DEC-1993.
XX
PF   14-APR-1993;   93WO-US03388.
XX
PR   15-JUN-1992;   92US-0899073.
XX
PA   (PFIZ ) PFIZER INC.
XX
PI   Andrews GC,  Daumy GO,  Francoeur ML,  Larson ER;
XX
DR   WPI; 1994-007457/01.
XX
PT   New derivs. of glucagon-like peptide 1 and insulinotropin - used for
PT   enhancing insulin action in a mammal, partic. by iontophoretic admin.
XX
PS   Claim 3; Page 20; 32pp; English.
XX
CC   The sequence is that of a derivative of insulinotropin which
CC   has insulinotropic activity and is useful for enhancing insulin
CC   action in a mammal, partic. for treating Type II diabetes
CC   (claimed). It is partic. suited for delivery to a mammal by
CC   ionophoresis.
XX
SQ   Sequence   29 AA;

  Query Match             100.0%;  Score 144;  DB 15;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


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OM protein - protein search, using sw model

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(without alignments)
58.846 Million cell updates/sec

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Perfect score: 144
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

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Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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6: /cgn2_6/ptodata/2/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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| 1 | 144 | 100.0 | 28 | 1 | US-08-095-162-4 | Sequence 4, Appli |
| 2 | 144 | 100.0 | 28 | 1 | US-08-470-220A-4 | Sequence 4, Appli |
| 3 | 144 | 100.0 | 28 | 3 | US-08-967-374-4 | Sequence 4, Appli |
| 4 | 144 | 100.0 | 28 | 4 | US-08-472-349-5 | Sequence 5, Appli |
| 5 | 144 | 100.0 | 28 | 4 | US-09-209-799D-8 | Sequence 8, Appli |
| 6 | 144 | 100.0 | 28 | 4 | US-09-505-991-4 | Sequence 4, Appli |
| 7 | 144 | 100.0 | 28 | 4 | US-09-212-663-5 | Sequence 5, Appli |
| 8 | 144 | 100.0 | 28 | 5 | PCT-US95-15800-21 | Sequence 21, Appl |
| 9 | 144 | 100.0 | 29 | 1 | US-08-095-162-18 | Sequence 18, Appl |
| 10 | 144 | 100.0 | 29 | 1 | US-08-470-220A-18 | Sequence 18, Appl |
| 11 | 144 | 100.0 | 29 | 3 | US-08-967-374-18 | Sequence 18, Appl |
| 12 | 144 | 100.0 | 29 | 4 | US-08-472-349-4 | Sequence 4, Appli |
| 13 | 144 | 100.0 | 29 | 4 | US-09-209-799D-9 | Sequence 9, Appli |
| 14 | 144 | 100.0 | 29 | 4 | US-09-505-991-18 | Sequence 18, Appl |
| 15 | 144 | 100.0 | 30 | 1 | US-08-066-480-6 | Sequence 6, Appli |
| 16 | 144 | 100.0 | 30 | 1 | US-08-095-162-1 | Sequence 1, Appli |
| 17 | 144 | 100.0 | 30 | 1 | US-08-470-220A-1 | Sequence 1, Appli |
| 18 | 144 | 100.0 | 30 | 2 | US-08-927-227-1 | Sequence 1, Appli |
| 19 | 144 | 100.0 | 30 | 3 | US-08-967-374-1 | Sequence 1, Appli |
| 20 | 144 | 100.0 | 30 | 4 | US-09-348-136-1 | Sequence 1, Appli |
| 21 | 144 | 100.0 | 30 | 4 | US-08-961-405A-5 | Sequence 5, Appli |
| 22 | 144 | 100.0 | 30 | 4 | US-08-915-918A-5 | Sequence 5, Appli |
| 23 | 144 | 100.0 | 30 | 4 | US-09-302-596-4 | Sequence 4, Appli |
| 24 | 144 | 100.0 | 30 | 4 | US-08-472-349-3 | Sequence 3, Appli |
| 25 | 144 | 100.0 | 30 | 4 | US-09-333-415-4 | Sequence 4, Appli |
| 26 | 144 | 100.0 | 30 | 4 | US-09-585-181A-4 | Sequence 4, Appli |
| 27 | 144 | 100.0 | 30 | 4 | US-09-209-799D-10 | Sequence 10, Appl |
| 28 | 144 | 100.0 | 30 | 4 | US-09-975-905-1 | Sequence 1, Appli |
| 29 | 144 | 100.0 | 30 | 4 | US-09-505-991-1 | Sequence 1, Appli |
| 30 | 144 | 100.0 | 30 | 4 | US-09-573-809-1 | Sequence 1, Appli |
| 31 | 144 | 100.0 | 30 | 4 | US-09-303-016-4 | Sequence 4, Appli |
| 32 | 144 | 100.0 | 30 | 4 | US-09-212-663-4 | Sequence 4, Appli |
| 33 | 144 | 100.0 | 30 | 5 | PCT-US95-15800-27 | Sequence 27, Appl |
| 34 | 144 | 100.0 | 31 | 1 | US-09-025-951-1 | Sequence 1, Appli |
| 35 | 144 | 100.0 | 31 | 1 | US-08-095-162-2 | Sequence 2, Appli |
| 36 | 144 | 100.0 | 31 | 1 | US-08-095-162-3 | Sequence 3, Appli |
| 37 | 144 | 100.0 | 31 | 1 | US-08-295-913A-1 | Sequence 1, Appli |
| 38 | 144 | 100.0 | 31 | 1 | US-08-470-220A-2 | Sequence 2, Appli |
| 39 | 144 | 100.0 | 31 | 1 | US-08-470-220A-3 | Sequence 3, Appli |
| 40 | 144 | 100.0 | 31 | 2 | US-08-807-263-3 | Sequence 3, Appli |
| 41 | 144 | 100.0 | 31 | 3 | US-08-967-374-2 | Sequence 2, Appli |
| 42 | 144 | 100.0 | 31 | 3 | US-08-967-374-3 | Sequence 3, Appli |
| 43 | 144 | 100.0 | 31 | 4 | US-08-961-405A-1 | Sequence 1, Appli |
| 44 | 144 | 100.0 | 31 | 4 | US-09-258-750-3 | Sequence 3, Appli |
| 45 | 144 | 100.0 | 31 | 4 | US-08-915-918A-1 | Sequence 1, Appli |

ALIGNMENTS

```
RESULT 1
US-08-095-162-4
; Sequence 4, Application US/08095162
; Patent No. 5512459
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5512459west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/095,162
;      FILING DATE:  20-JUL-1993
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  28 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 (7-34)
US-08-095-162-4

  Query Match            100.0%;  Score 144;  DB 1;  Length 28;
  Best Local Similarity  100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 2
US-08-470-220A-4
; Sequence 4, Application US/08470220A
; Patent No. 5707826
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5707826west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/470,220A
;      FILING DATE:  06-JUN-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/095,162
;      FILING DATE:  20-JUL-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  28 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 (7-34)
US-08-470-220A-4

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  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
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RESULT 3
US-08-967-374-4
; Sequence 4, Application US/08967374
; Patent No. 6037143
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 6037143west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/967,374
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/520,485
;      FILING DATE:  29-AUG-1995
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Carter, Charles G.
;      REGISTRATION NUMBER:  35,093
;      REFERENCE/DOCKET NUMBER:  8648.32-USD1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  28 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 (7-34)
US-08-967-374-4

  Query Match             100.0%;  Score 144;  DB 3;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 4
US-08-472-349-5
; Sequence 5, Application US/08472349
; Patent No. 6284727
;  GENERAL INFORMATION:
;    APPLICANT:  Kim, Yesook
;    APPLICANT:  Lambert, William J.
;    APPLICANT:  Qi, Hong
;    APPLICANT:  Gelfand, Robert A.
;    APPLICANT:  Geoghegan, Kieran F.
;    APPLICANT:  Danley, Dennis E.
;    TITLE OF INVENTION:  Prolonged Delivery of Peptides
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Pfizer Inc
;      STREET:  235 East 42nd Street, 20th Floor
;      CITY:  New York
;      STATE:  New York
;      COUNTRY:  U.S.A.
;      ZIP:  10017-5755
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
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;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/472,349
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/181,655
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Sheyka, Robert F.
;      REGISTRATION NUMBER:  31,304
;      REFERENCE/DOCKET NUMBER:  PC8391
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (212)573-1189
;      TELEFAX:  (212)573-1939
;      TELEX:  N/A
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  28 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  N-terminal
;    ORIGINAL SOURCE:
;      ORGANISM:  N/A
;      STRAIN:  N/A
;      INDIVIDUAL ISOLATE:  N/A
;      HAPLOTYPE:  N/A
;      CELL LINE:  N/A
;    IMMEDIATE SOURCE:
;      LIBRARY:  N/A
;      CLONE:  N/A
;    POSITION IN GENOME:
;      CHROMOSOME/SEGMENT:  N/A
;      MAP POSITION:  N/A
US-08-472-349-5

  Query Match             100.0%;  Score 144;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 5
US-09-209-799D-8
; Sequence 8, Application US/09209799D
; Patent No. 6380357
; GENERAL INFORMATION:
;  APPLICANT: Hermeling, Ronald
;  APPLICANT:  Hoffmann, James
;  APPLICANT:  Narasimhan, Chakravarthy
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242
;  CURRENT APPLICATION NUMBER: US/09/209,799D
;  CURRENT FILING DATE:  1998-12-11
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 8
;   LENGTH: 28
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: synthetic construct
US-09-209-799D-8

  Query Match             100.0%;  Score 144;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 6
US-09-505-991-4
; Sequence 4, Application US/09505991
; Patent No. 6403361
;   GENERAL INFORMATION:
;        APPLICANT: Wagner, Fred W.
;                   Stout, Jay
;                   Henriksen, Dennis
;                   Partridge, Bruce
;                   Manning, Shane
;        TITLE OF INVENTION: Enzymatic Method for Modification of
;                            Recombinant Polypeptides
;        NUMBER OF SEQUENCES: 26
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Merchant & Gould
;             STREET: 3100 No. 6403361west Center
;             CITY: Minneapolis
;             STATE: MN
;             COUNTRY: USA
;             ZIP: 55402
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Floppy disk
;             COMPUTER: IBM PC compatible
;             OPERATING SYSTEM: PC-DOS/MS-DOS
;             SOFTWARE: PatentIn Release #1.0, Version #1.30
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/09/505,991
;             FILING DATE: 17-Feb-2000
;             CLASSIFICATION: <Unknown>
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: 08/520,485
;             FILING DATE: <Unknown>
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Carter, Charles G.
;             REGISTRATION NUMBER: 35,093
;             REFERENCE/DOCKET NUMBER: 8648.32-USD1
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: 612-332-5300
;             TELEFAX: 612-332-9081
;   INFORMATION FOR SEQ ID NO: 4:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 28 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: peptide
;        IMMEDIATE SOURCE:
;             CLONE: GLP1 (7-34)
;        SEQUENCE DESCRIPTION: SEQ ID NO: 4:
US-09-505-991-4

  Query Match             100.0%;  Score 144;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 7
US-09-212-663-5
; Sequence 5, Application US/09212663
; Patent No. 6461834
; GENERAL INFORMATION:
;  APPLICANT:  DORMADY, Dan
;  APPLICANT:  STOUT, Jay S.
;  APPLICANT:  STRYDOM, Daniel J.
```

```
;  APPLICANT:  HOLMQUIST, Barton
;  APPLICANT:  WAGNER, Fred W.
;  TITLE OF INVENTION:  ENZYMATIC AMIDATION OF PEPTIDES
;  FILE REFERENCE:  089187/0162
;  CURRENT APPLICATION NUMBER: US/09/212,663
;  CURRENT FILING DATE:  1998-12-16
;  PRIOR APPLICATION NUMBER:  US 60/107,311
;  PRIOR FILING DATE:  1998-11-06
;  NUMBER OF SEQ ID NOS:  25
;  SOFTWARE:  PatentIn Ver. 2.0
; SEQ ID NO 5
;   LENGTH: 28
;   TYPE: PRT
;   ORGANISM: Escherichia coli
US-09-212-663-5

  Query Match             100.0%;  Score 144;  DB 4;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 8
PCT-US95-15800-21
; Sequence 21, Application PC/TUS9515800
;  GENERAL INFORMATION:
;    APPLICANT:  BioNebraska, Inc.
;    TITLE OF INVENTION:  PRODUCTION OF PEPTIDES USING
;    TITLE OF INVENTION:  RECOMBINANT FUSION PROTEIN CONSTRICTS
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 Norwest Center, 90 S. 7th Street
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  U.S.A.
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  DOS
;      SOFTWARE:  FastSEQ Version 1.5
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/15800
;      FILING DATE:  07-DEC-1995
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/350,530
;      FILING DATE:  07-DEC-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Carter, Charles G
;      REGISTRATION NUMBER:  35,093
;      REFERENCE/DOCKET NUMBER:  8648.45USWO
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612/332-5300
;      TELEFAX:  612/332-9081
;      TELEX:
;  INFORMATION FOR SEQ ID NO:  21:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  28 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  internal
;    ORIGINAL SOURCE:
PCT-US95-15800-21

  Query Match             100.0%;  Score 144;  DB 5;  Length 28;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 9
US-08-095-162-18
; Sequence 18, Application US/08095162
; Patent No. 5512459
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5512459west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/095,162
;      FILING DATE:  20-JUL-1993
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  18:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  29 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-095-162-18

  Query Match             100.0%;  Score 144;  DB 1;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 10
US-08-470-220A-18
; Sequence 18, Application US/08470220A
; Patent No. 5707826
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
```

```
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5707826west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/470,220A
;      FILING DATE:  06-JUN-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/095,162
;      FILING DATE:  20-JUL-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  18:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  29 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-470-220A-18

  Query Match             100.0%;  Score 144;  DB 1;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 11
US-08-967-374-18
; Sequence 18, Application US/08967374
; Patent No. 6037143
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 6037143west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/967,374
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/520,485
;      FILING DATE:  29-AUG-1995
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Carter, Charles G.
;      REGISTRATION NUMBER:  35,093
;      REFERENCE/DOCKET NUMBER:  8648.32-USD1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  18:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  29 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-967-374-18

  Query Match             100.0%;  Score 144;  DB 3;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 12
US-08-472-349-4
; Sequence 4, Application US/08472349
; Patent No. 6284727
;  GENERAL INFORMATION:
;    APPLICANT:  Kim, Yesook
;    APPLICANT:  Lambert, William J.
;    APPLICANT:  Qi, Hong
;    APPLICANT:  Gelfand, Robert A.
;    APPLICANT:  Geoghegan, Kieran F.
;    APPLICANT:  Danley, Dennis E.
;    TITLE OF INVENTION:  Prolonged Delivery of Peptides
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Pfizer Inc
;      STREET:  235 East 42nd Street, 20th Floor
;      CITY:  New York
;      STATE:  New York
;      COUNTRY:  U.S.A.
;      ZIP:  10017-5755
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/472,349
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/181,655
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Sheyka, Robert F.
;      REGISTRATION NUMBER:  31,304
;      REFERENCE/DOCKET NUMBER:  PC8391
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (212)573-1189
;      TELEFAX:  (212)573-1939
;      TELEX:  N/A
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  29 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
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;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  N-terminal
;    ORIGINAL SOURCE:
;      ORGANISM:  N/A
;      STRAIN:  N/A
;      INDIVIDUAL ISOLATE:  N/A
;      HAPLOTYPE:  N/A
;      CELL LINE:  N/A
;    IMMEDIATE SOURCE:
;      LIBRARY:  N/A
;      CLONE:  N/A
;    POSITION IN GENOME:
;      CHROMOSOME/SEGMENT:  N/A
;      MAP POSITION:  N/A
US-08-472-349-4

  Query Match             100.0%;  Score 144;  DB 4;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 13
US-09-209-799D-9
; Sequence 9, Application US/09209799D
; Patent No. 6380357
; GENERAL INFORMATION:
;  APPLICANT: Hermeling, Ronald
;  APPLICANT:  Hoffmann, James
;  APPLICANT:  Narasimhan, Chakravarthy
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242
;  CURRENT APPLICATION NUMBER: US/09/209,799D
;  CURRENT FILING DATE:  1998-12-11
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 9
;   LENGTH: 29
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: synthetic construct
US-09-209-799D-9

  Query Match             100.0%;  Score 144;  DB 4;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 14
US-09-505-991-18
; Sequence 18, Application US/09505991
; Patent No. 6403361
;   GENERAL INFORMATION:
;        APPLICANT: Wagner, Fred W.
;                   Stout, Jay
;                   Henriksen, Dennis
;                   Partridge, Bruce
;                   Manning, Shane
;        TITLE OF INVENTION: Enzymatic Method for Modification of
;                            Recombinant Polypeptides
;        NUMBER OF SEQUENCES: 26
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Merchant & Gould
;             STREET: 3100 No. 6403361west Center
;             CITY: Minneapolis
;             STATE: MN
;             COUNTRY: USA
;             ZIP: 55402
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Floppy disk
;             COMPUTER: IBM PC compatible
;             OPERATING SYSTEM: PC-DOS/MS-DOS
;             SOFTWARE: PatentIn Release #1.0, Version #1.30
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/09/505,991
;             FILING DATE: 17-Feb-2000
;             CLASSIFICATION: <Unknown>
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: 08/520,485
;             FILING DATE: <Unknown>
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Carter, Charles G.
;             REGISTRATION NUMBER: 35,093
;             REFERENCE/DOCKET NUMBER: 8648.32-USD1
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: 612-332-5300
;             TELEFAX: 612-332-9081
;   INFORMATION FOR SEQ ID NO: 18:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 29 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: peptide
;        SEQUENCE DESCRIPTION: SEQ ID NO: 18:
US-09-505-991-18

  Query Match             100.0%;  Score 144;  DB 4;  Length 29;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 15
US-08-066-480-6
; Sequence 6, Application US/08066480
; Patent No. 5424286
;  GENERAL INFORMATION:
;    APPLICANT:  Eng, John
;    TITLE OF INVENTION:  Pharmaceutical Compositions And Use of
;    TITLE OF INVENTION:  Exendin-3 and Exendin-4 for Treatment of Diabetes Mellitus
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Allegretti & Witcoff, Ltd.
;      STREET:  10 S. Wacker Drive
;      CITY:  Chicago
;      STATE:  Illinois
;      COUNTRY:  USA
;      ZIP:  60606
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/066,480
;      FILING DATE:  24-MAR-1993
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  McDonnell, John J
;      REGISTRATION NUMBER:  26,949
;      REFERENCE/DOCKET NUMBER:  93,084
;    TELECOMMUNICATION INFORMATION:
```

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;      TELEPHONE:  312-715-1000
;      TELEFAX:  312-715-1234
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    FEATURE:
;      NAME/KEY:  Peptide
;      LOCATION:  1..30
;      OTHER INFORMATION:  /label= GLP-1-7-36
;      OTHER INFORMATION:  /note= "GLP-1(7-36) fragment"
US-08-066-480-6

  Query Match             100.0%;  Score 144;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.2e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


Search completed: March 19, 2003, 12:06:21
Job time : 14 secs
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GenCore version 5.1.4_p5_4578
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OM protein - protein search, using sw model

Run on: March 19, 2003, 12:05:42 ; Search time 14 Seconds
(without alignments)
106.924 Million cell updates/sec

Title: US-09-508-083-1
Perfect score: 144
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 221153 seqs, 53462247 residues

Total number of hits satisfying chosen parameters: 221153

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
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12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
13: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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| 1 | 144 | 100.0 | 28 | 9 | US-09-997-792-8 | Sequence 8, Appli |
| 2 | 144 | 100.0 | 29 | 9 | US-09-834-229A-3 | Sequence 3, Appli |
| 3 | 144 | 100.0 | 29 | 9 | US-09-997-792-9 | Sequence 9, Appli |
| 4 | 144 | 100.0 | 30 | 9 | US-10-125-255-1 | Sequence 1, Appli |
| 5 | 144 | 100.0 | 30 | 9 | US-09-834-229A-5 | Sequence 5, Appli |
| 6 | 144 | 100.0 | 30 | 9 | US-09-997-792-10 | Sequence 10, Appl |
| 7 | 144 | 100.0 | 30 | 10 | US-09-851-738-4 | Sequence 4, Appli |
| 8 | 144 | 100.0 | 30 | 10 | US-09-805-507-4 | Sequence 4, Appli |
| 9 | 144 | 100.0 | 30 | 10 | US-09-859-804-4 | Sequence 4, Appli |
| 10 | 144 | 100.0 | 30 | 10 | US-09-982-978-4 | Sequence 4, Appli |
| 11 | 144 | 100.0 | 30 | 10 | US-09-953-021B-4 | Sequence 4, Appli |
| 12 | 144 | 100.0 | 30 | 12 | US-10-072-540A-4 | Sequence 4, Appli |
| 13 | 144 | 100.0 | 31 | 9 | US-09-834-229A-1 | Sequence 1, Appli |
| 14 | 144 | 100.0 | 31 | 9 | US-09-997-792-1 | Sequence 1, Appli |
| 15 | 144 | 100.0 | 31 | 9 | US-10-093-958-19 | Sequence 19, Appl |
| 16 | 144 | 100.0 | 31 | 10 | US-09-754-723-1 | Sequence 1, Appli |
| 17 | 144 | 100.0 | 31 | 10 | US-09-420-785A-3 | Sequence 3, Appli |
| 18 | 144 | 100.0 | 31 | 10 | US-09-876-388-2 | Sequence 2, Appli |
| 19 | 144 | 100.0 | 31 | 10 | US-09-876-388-17 | Sequence 17, Appl |
| 20 | 144 | 100.0 | 31 | 10 | US-09-876-388-27 | Sequence 27, Appl |
| 21 | 144 | 100.0 | 31 | 10 | US-09-876-388-28 | Sequence 28, Appl |
| 22 | 144 | 100.0 | 31 | 10 | US-09-851-738-3 | Sequence 3, Appli |
| 23 | 144 | 100.0 | 31 | 10 | US-09-805-507-3 | Sequence 3, Appli |
| 24 | 144 | 100.0 | 31 | 10 | US-09-859-804-3 | Sequence 3, Appli |
| 25 | 144 | 100.0 | 31 | 10 | US-09-982-978-3 | Sequence 3, Appli |
| 26 | 144 | 100.0 | 31 | 10 | US-09-953-021B-3 | Sequence 3, Appli |
| 27 | 144 | 100.0 | 31 | 12 | US-10-072-540A-1 | Sequence 1, Appli |
| 28 | 144 | 100.0 | 35 | 9 | US-09-943-084-1 | Sequence 1, Appli |
| 29 | 144 | 100.0 | 36 | 10 | US-09-851-738-2 | Sequence 2, Appli |
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| 34 | 144 | 100.0 | 37 | 10 | US-09-420-785A-2 | Sequence 2, Appli |
| 35 | 144 | 100.0 | 37 | 10 | US-09-876-388-1 | Sequence 1, Appli |
| 36 | 144 | 100.0 | 37 | 10 | US-09-876-388-16 | Sequence 16, Appl |
| 37 | 144 | 100.0 | 37 | 10 | US-09-876-388-25 | Sequence 25, Appl |
| 38 | 144 | 100.0 | 37 | 10 | US-09-876-388-26 | Sequence 26, Appl |
| 39 | 144 | 100.0 | 37 | 10 | US-09-851-738-1 | Sequence 1, Appli |
| 40 | 144 | 100.0 | 37 | 10 | US-09-805-507-1 | Sequence 1, Appli |
| 41 | 144 | 100.0 | 37 | 10 | US-09-859-804-1 | Sequence 1, Appli |
| 42 | 144 | 100.0 | 37 | 10 | US-09-982-978-1 | Sequence 1, Appli |
| 43 | 144 | 100.0 | 37 | 10 | US-09-953-021B-1 | Sequence 1, Appli |
| 44 | 141 | 97.9 | 31 | 9 | US-09-997-792-11 | Sequence 11, Appl |
| 45 | 140 | 97.2 | 30 | 9 | US-09-997-792-15 | Sequence 15, Appl |

ALIGNMENTS

RESULT 1
US-09-997-792-8
; Sequence 8, Application US/09997792
; Publication No. US20030045464A1
; GENERAL INFORMATION:
; APPLICANT: Hermeling, Ronald
; APPLICANT: Hoffmann, James
; APPLICANT: Narasimhan, Chakravarthy
; TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
; FILE REFERENCE: X-10242
; CURRENT APPLICATION NUMBER: US/09/997,792
; CURRENT FILING DATE: 2001-11-30
; NUMBER OF SEQ ID NOS: 29
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 8
; LENGTH: 28
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: synthetic construct
US-09-997-792-8

Query Match 100.0%; Score 144; DB 9; Length 28;
Best Local Similarity 100.0%; Pred. No. 2.7e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
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Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

RESULT 2
US-09-834-229A-3
; Sequence 3, Application US/09834229A
; Publication No. US20030022823A1
; GENERAL INFORMATION:
; APPLICANT: Efendic, Suad
; TITLE OF INVENTION: USE OF GLP-1 OR ANALOGS IN TREATMENT OF MYOCARDIAL INFARCTION
; FILE REFERENCE: X-10822A
; CURRENT APPLICATION NUMBER: US/09/834,229A
; CURRENT FILING DATE: 2001-04-12
; PRIOR APPLICATION NUMBER: US 08/915,918

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;  PRIOR FILING DATE: 1997-08-21
;  PRIOR APPLICATION NUMBER: US 06/024,980
;  PRIOR FILING DATE: 1996-08-30
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
;   LENGTH: 29
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic construct
;   NAME/KEY: MISC_FEATURE
;   LOCATION: (29)..(29)
;   OTHER INFORMATION: Xaa at position 29 is absent or Gly.
US-09-834-229A-3

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Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 3
US-09-997-792-9
; Sequence 9, Application US/09997792
; Publication No. US20030045464A1
; GENERAL INFORMATION:
;  APPLICANT: Hermeling, Ronald
;  APPLICANT:  Hoffmann, James
;  APPLICANT:  Narasimhan, Chakravarthy
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242
;  CURRENT APPLICATION NUMBER: US/09/997,792
;  CURRENT FILING DATE:  2001-11-30
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 9
;   LENGTH: 29
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic construct
US-09-997-792-9

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  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 4
US-10-125-255-1
; Sequence 1, Application US/10125255
; Patent No. US20020165342A1
; GENERAL INFORMATION:
;  APPLICANT: Galloway, John  A
;  APPLICANT:  Hoffmann, James A
;  TITLE OF INVENTION: Glucagon-Like Insulinotropic Peptides, Compositions and Methods
;  FILE REFERENCE: X-9332E
;  CURRENT APPLICATION NUMBER: US/10/125,255
;  CURRENT FILING DATE:  2002-04-17
;  PRIOR APPLICATION NUMBER: 09/573,809
;  PRIOR FILING DATE: 2000-05-18
;  NUMBER OF SEQ ID NOS: 1
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MOD_RES
;   LOCATION: (30)..(30)
;   OTHER INFORMATION: The arginine residue at position 30 is modified so as to repla
;   OTHER INFORMATION: the terminal carboxyl group with an amine.
US-10-125-255-1

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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 5
US-09-834-229A-5
; Sequence 5, Application US/09834229A
; Publication No. US20030022823A1
; GENERAL INFORMATION:
;  APPLICANT: Efendic, Suad
;  TITLE OF INVENTION: USE OF GLP-1 OR ANALOGS IN TREATMENT OF MYOCARDIAL INFARCTION
;  FILE REFERENCE: X-10822A
;  CURRENT APPLICATION NUMBER: US/09/834,229A
;  CURRENT FILING DATE:  2001-04-12
;  PRIOR APPLICATION NUMBER: US 08/915,918
;  PRIOR FILING DATE: 1997-08-21
;  PRIOR APPLICATION NUMBER: US 06/024,980
;  PRIOR FILING DATE: 1996-08-30
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic construct
US-09-834-229A-5

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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 6
US-09-997-792-10
; Sequence 10, Application US/09997792
; Publication No. US20030045464A1
; GENERAL INFORMATION:
;  APPLICANT: Hermeling, Ronald
;  APPLICANT:  Hoffmann, James
;  APPLICANT:  Narasimhan, Chakravarthy
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242
;  CURRENT APPLICATION NUMBER: US/09/997,792
;  CURRENT FILING DATE:  2001-11-30
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 10
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic construct
US-09-997-792-10
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  Best Local Similarity   100.0%;  Pred. No. 2.9e-15;
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RESULT 7
US-09-851-738-4
; Sequence 4, Application US/09851738
; Patent No. US20020055460A1
; GENERAL INFORMATION:
;  APPLICANT: Coolidge, Thomas R.
;  APPLICANT:  Ehlers, Mario R.W.
;  TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
;  TITLE OF INVENTION:  Ischemic and Reperfused Tissue
;  FILE REFERENCE: P03660US1
;  CURRENT APPLICATION NUMBER: US/09/851,738
;  CURRENT FILING DATE:  2001-05-09
;  PRIOR APPLICATION NUMBER: 09/302,596
;  PRIOR FILING DATE: 1999-04-30
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: mammalian
US-09-851-738-4

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RESULT 8
US-09-805-507-4
; Sequence 4, Application US/09805507
; Patent No. US20020098195A1
; GENERAL INFORMATION:
;  APPLICANT: COOLIDGE, THOMAS R.
;  APPLICANT:  EHLERS, MARIO
;  TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
;  FILE REFERENCE: 089187/0395
;  CURRENT APPLICATION NUMBER: US/09/805,507
;  CURRENT FILING DATE:  2001-03-14
;  PRIOR APPLICATION NUMBER: 09/859,804
;  PRIOR FILING DATE: 2001-05-18
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Unknown Organism
;   FEATURE:
;   OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
;   OTHER INFORMATION: peptide
US-09-805-507-4

  Query Match            100.0%;  Score 144;  DB 10;  Length 30;
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  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 9
US-09-859-804-4
; Sequence 4, Application US/09859804
; Patent No. US20020107206A1
; GENERAL INFORMATION:
;  APPLICANT: COOLIDGE, THOMAS R.
;  APPLICANT:  EHLERS, MARIO
;  TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
;  FILE REFERENCE: 089187/0395
;  CURRENT APPLICATION NUMBER: US/09/859,804
;  CURRENT FILING DATE:  2001-05-18
;  PRIOR APPLICATION NUMBER: 60/205,239
;  PRIOR FILING DATE: 2000-05-19
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Unknown Organism
;   FEATURE:
;   OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
;   OTHER INFORMATION: peptide
US-09-859-804-4

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  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 10
US-09-982-978-4
; Sequence 4, Application US/09982978
; Patent No. US20020146405A1
; GENERAL INFORMATION:
;  APPLICANT: COOLIDGE, THOMAS R.
;  APPLICANT:  EHLERS, MARIO
;  TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
;  FILE REFERENCE: 089187/0395
;  CURRENT APPLICATION NUMBER: US/09/982,978
;  CURRENT FILING DATE:  2001-10-22
;  PRIOR APPLICATION NUMBER: 09/859,804
;  PRIOR FILING DATE: 2001-05-18
;  PRIOR APPLICATION NUMBER: 60/205,239
;  PRIOR FILING DATE: 2000-05-19
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Unknown Organism
;   FEATURE:
;   OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
;   OTHER INFORMATION: peptide
US-09-982-978-4

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  Best Local Similarity   100.0%;  Pred. No. 2.9e-15;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 11
US-09-953-021B-4
; Sequence 4, Application US/09953021B
; Patent No. US20020147131A1
; GENERAL INFORMATION:
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;  APPLICANT: Coolidge, Thomas L.
;  APPLICANT:  Ehlers, Mario R.W.
;  TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of Isch
;  TITLE OF INVENTION:  Reperfused Skeletal Muscle Tissue
;  FILE REFERENCE: P03660US6
;  CURRENT APPLICATION NUMBER: US/09/953,021B
;  CURRENT FILING DATE:  2001-09-11
;  PRIOR APPLICATION NUMBER: 09/302,596
;  PRIOR FILING DATE: 1999-04-30
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-953-021B-4

  Query Match             100.0%;  Score 144;  DB 10;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 2.9e-15;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 12
US-10-072-540A-4
; Sequence 4, Application US/10072540A
; Patent No. US20020123466A1
; GENERAL INFORMATION:
;  APPLICANT: Hoffmann, James
;  TITLE OF INVENTION: GLP-1 FORMULATIONS
;  FILE REFERENCE: X-11368A
;  GURRENT APPLICATION NUMBER: US/10/072,540A
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: US 60/067,600
;  PRIOR FILING DATE: 1997-12-05
;  NUMBER OF SEQ ID NOS: 5
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MOD_RES
;   LOCATION: (30)..(30)
;   OTHER INFORMATION: AMIDATION
US-10-072-540A-4

  Query Match             100.0%;  Score 144;  DB 12;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 2.9e-15;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 13
US-09-834-229A-1
; Sequence 1, Application US/09834229A
; Publication No. US20030022823A1
; GENERAL INFORMATION:
;  APPLICANT: Efendic, Suad
;  TITLE OF INVENTION: USE OF GLP-1 OR ANALOGS IN TREATMENT OF MYOCARDIAL INFARCTION
;  FILE REFERENCE: X-10822A
;  CURRENT APPLICATION NUMBER: US/09/834,229A
;  CURRENT FILING DATE:  2001-04-12
;  PRIOR APPLICATION NUMBER: US 08/915,918
;  PRIOR FILING DATE: 1997-08-21
;  PRIOR APPLICATION NUMBER: US 06/024,980
;  PRIOR FILING DATE: 1996-08-30
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-834-229A-1

  Query Match             100.0%;  Score 144;  DB 9;  Length 31;
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 14
US-09-997-792-1
; Sequence 1, Application US/09997792
; Publication No. US20030045464A1
; GENERAL INFORMATION:
;  APPLICANT: Hermeling, Ronald
;  APPLICANT:  Hoffmann, James
;  APPLICANT:  Narasimhan, Chakravarthy
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242
;  CURRENT APPLICATION NUMBER: US/09/997,792
;  CURRENT FILING DATE:  2001-11-30
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 1
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-997-792-1

  Query Match             100.0%;  Score 144;  DB 9;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 3e-15;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28


RESULT 15
US-10-093-958-19
; Sequence 19, Application US/10093958
; Publication No. US20030044423A1
; GENERAL INFORMATION:
;  APPLICANT: Gillies, Stephen
;  APPLICANT:  Jeffrey, Way
;  TITLE OF INVENTION: Expression Technology for Proteins Containing a Hybrid Isotype
;  TITLE OF INVENTION:  Moiety
;  FILE REFERENCE: LEX-016
;  CURRENT APPLICATION NUMBER: US/10/093,958
;  CURRENT FILING DATE:  2002-03-07
;  PRIOR APPLICATION NUMBER: US 60/274,096
;  PRIOR FILING DATE: 2001-03-07
;  NUMBER OF SEQ ID NOS: 50
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 19
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: artificial sequence
;   FEATURE:
;   OTHER INFORMATION: glucagon-like peptide 1
US-10-093-958-19

  Query Match             100.0%;  Score 144;  DB 9;  Length 31;
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  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
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Search completed: March 19, 2003, 12:09:50
Job time : 15 secs

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GenCore version 5.1.4_p5_4578
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OM protein - protein search, using sw model

Run on: March 19, 2003, 12:09:32 ; Search time 16 Seconds
(without alignments)
168.235 Million cell updates/sec

Title: US-09-508-083-1
Perfect score: 144
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 144 | 100.0 | 158 | 1 | GCPG | glucagon precursor |
| 2 | 144 | 100.0 | 180 | 1 | GCHU | glucagon precursor |
| 3 | 144 | 100.0 | 180 | 1 | GCGP | glucagon precursor |
| 4 | 144 | 100.0 | 180 | 1 | GCRTDU | glucagon precursor |
| 5 | 144 | 100.0 | 180 | 1 | GCRT | glucagon precursor |
| 6 | 144 | 100.0 | 180 | 1 | GCHY | glucagon precursor |
| 7 | 144 | 100.0 | 180 | 1 | GCBO | glucagon precursor |
| 8 | 144 | 100.0 | 180 | 2 | A57294 | glucagon precursor |
| 9 | 132 | 91.7 | 151 | 1 | GCCH | glucagon precursor |
| 10 | 132 | 91.7 | 206 | 2 | I51301 | proglucagon - chic |
| 11 | 118 | 81.9 | 30 | 2 | B61125 | glucagon-like pept |
| 12 | 118 | 81.9 | 30 | 2 | C61125 | glucagon-like pept |
| 13 | 118 | 81.9 | 101 | 1 | GCFGB | glucagon precursor |
| 14 | 112 | 77.8 | 63 | 1 | GCIDC | glucagon precursor |
| 15 | 112 | 77.8 | 122 | 1 | GCAF2 | glucagon 2 precurs |
| 16 | 110 | 76.4 | 72 | 1 | GCGXA | glucagon precursor |
| 17 | 109 | 75.7 | 66 | 2 | I51093 | glucagon - chinook |
| 18 | 109 | 75.7 | 178 | 2 | I51058 | glucagon I precurs |
| 19 | 109 | 75.7 | 178 | 2 | I51057 | glucagon II precur |
| 20 | 104 | 72.2 | 30 | 2 | S44473 | glucagon-like pept |
| 21 | 104 | 72.2 | 60 | 1 | GCONC | glucagon precursor |
| 22 | 97 | 67.4 | 29 | 2 | S07211 | glucagon - marbled |
| 23 | 97 | 67.4 | 87 | 1 | GCFIS | glucagon precursor |
| 24 | 95 | 66.0 | 29 | 1 | GCDF | glucagon - smaller |
| 25 | 93 | 64.6 | 29 | 1 | GCEN | glucagon - elephan |
| 26 | 93 | 64.6 | 124 | 1 | GCAF | glucagon 1 precurs |
| 27 | 90 | 62.5 | 29 | 1 | GCOPV | glucagon - North A |
| 28 | 90 | 62.5 | 29 | 2 | A91740 | glucagon - turkey |
| 29 | 90 | 62.5 | 29 | 2 | A91741 | glucagon - rabbit |
| 30 | 90 | 62.5 | 29 | 2 | A91742 | glucagon - Arabian |
| 31 | 90 | 62.5 | 29 | 2 | C39258 | glucagon - common |
| 32 | 90 | 62.5 | 31 | 2 | S44472 | glucagon G2 - Nort |
| 33 | 90 | 62.5 | 69 | 1 | GCDG69 | glucagon-69 - dog |
| 34 | 88 | 61.1 | 29 | 1 | GCDK | glucagon - duck |
| 35 | 88 | 61.1 | 29 | 1 | A61583 | glucagon - ostrich |
| 36 | 88 | 61.1 | 29 | 1 | GCTTS | glucagon - slider |
| 37 | 88 | 61.1 | 29 | 2 | C60840 | glucagon I - Europ |
| 38 | 88 | 61.1 | 31 | 2 | S44471 | glucagon G1 - Nort |
| 39 | 87 | 60.4 | 29 | 1 | GCCB | glucagon - Chinchi |
| 40 | 86 | 59.7 | 29 | 1 | GCFLE | glucagon - Europea |
| 41 | 86 | 59.7 | 29 | 2 | A61135 | glucagon - bigeye |
| 42 | 83 | 57.6 | 29 | 2 | S39018 | glucagon - bowfin |
| 43 | 83 | 57.6 | 39 | 1 | HWGH4G | exendin-4 - Gila m |
| 44 | 81 | 56.2 | 39 | 1 | HWGH3Z | exendin-3 - Mexica |
| 45 | 79 | 54.9 | 36 | 1 | GCFI | glucagon-36 - spot |

ALIGNMENTS

RESULT 1
GCPG
glucagon precursor - pig (fragment)
N;Alternate names: glicentin; oxyntomodulin
N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucago
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 17-Dec-1982 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: A01540; A60312; A91781; B32614; A28064
R;Thim, L.; Moody, A.J.
Regul. Pept. 2, 139-150, 1981
A;Title: The primary structure of porcine glicentin (proglucagon).
A;Reference number: A94233; MUID:81248172; PMID:6894800
A;Accession: A01540
A;Molecule type: protein
A;Residues: 1-69 <TH1>
R;Thim, L.; Moody, A.J.
Regul. Pept. Suppl. 2, S33, 1983
A;Title: Primary structure of a possible porcine proglucagon fragment.
A;Reference number: A60312
A;Accession: A60312
A;Molecule type: protein
A;Residues: 1-30 <TH2>
A;Note: this peptide is co-secreted with glucagon from the pancreas
R;Bromer, W.W.; Sinn, L.G.; Behrens, O.K.
J. Am. Chem. Soc. 79, 2807-2810, 1957
A;Title: The amino acid sequence of glucagon. V. Location of amide groups, acid degra
A;Reference number: A91781
A;Accession: A91781
A;Molecule type: protein
A;Residues: 33-61 <BRO>
R;Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A;Title: Complete sequences of glucagon-like peptide-1 from human and pig small intes
A;Reference number: A92732; MUID:89327238; PMID:2753890
A;Accession: B32614
A;Molecule type: protein
A;Residues: 78-107 <ORS>
R;Buhl, T.; Thim, L.; Kofod, H.; Orskov, C.; Harling, H.; Holst, J.J.
J. Biol. Chem. 263, 8621-8624, 1988
A;Title: Naturally occurring products of proglucagon 111-160 in the porcine and human
A;Reference number: A28064; MUID:88243712; PMID:3379036
A;Accession: A28064
A;Molecule type: protein
A;Residues: 111-158 <BUH>
C;Comment: X's represent missing amino acids, mostly basic, that are predicted to exi
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; int
F;1-69/Product: glucagon-69 #status experimental <G69>
F;1-30/Region: glicentin-related peptide #status experimental
F;33-69/Product: glucagon-37 #status predicted <G37>
F;33-61/Product: glucagon #status experimental <GCN>
F;78-107/Product: glucagon-like peptide 1 #status experimental <GL1>

F;126-158/Product: glucagon-like peptide 2 #status experimental <GL2>
F;107/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 144; DB 1; Length 158;
Best Local Similarity 100.0%; Pred. No. 1.1e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 78 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 105

RESULT 2
GCHU
glucagon precursor [validated] - human
N;Contains: glicentin; glicentin-related polypeptide (GRPP); glucagon; glucagon-like pep
ke peptide 1 (tGLP1)
C;Species: Homo sapiens (man)
C;Date: 24-Apr-1984 #sequence_revision 31-Mar-1993 #text_change 08-Dec-2000
C;Accession: A24377; A44197; A30875; A32614; A01541; S23309
R;White, J.W.; Saunders, G.F.
Nucleic Acids Res. 14, 4719-4730, 1986
A;Title: Structure of the human glucagon gene.
A;Reference number: A24377; MUID:86259053; PMID:3725587
A;Accession: A24377
A;Molecule type: DNA
A;Residues: 1-180 <WHI>
A;Cross-references: GB:X03991
R;Bell, G.I.; Sanchez-Pescador, R.; Laybourn, P.J.; Najarian, R.C.
Nature 304, 368-371, 1983
A;Title: Exon duplication and divergence in the human preproglucagon gene.
A;Reference number: A44197; MUID:83271477; PMID:6877358
A;Accession: A44197
A;Molecule type: DNA
A;Residues: 1-179 <BEL>
A;Cross-references: GB:V01515; NID:g31777; PIDN:CAA24759.1; PID:g31778
R;Drucker, D.J.; Asa, S.
J. Biol. Chem. 263, 13475-13478, 1988
A;Title: Glucagon gene expression in vertebrate brain.
A;Reference number: A30875; MUID:88330860; PMID:2901114
A;Accession: A30875
A;Molecule type: mRNA
A;Residues: 1-180 <DRU>
A;Cross-references: GB:J04040; NID:g183269; PIDN:AAA52567.1; PID:g183270
R;Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A;Title: Complete sequences of glucagon-like peptide-1 from human and pig small intestin
A;Reference number: A92732; MUID:89327238; PMID:2753890
A;Accession: A32614
A;Molecule type: protein
A;Residues: 98-127 <ORS>
R;Thomsen, J.; Kristiansen, K.; Brunfeldt, K.; Sundby, F.
FEBS Lett. 21, 315-319, 1972
A;Title: The amino acid sequence of human glucagon.
A;Reference number: A91373
A;Accession: A01541
A;Molecule type: protein
A;Residues: 53-81 <THO>
R;Tsugita, A.; Takamoto, K.; Kamo, M.; Iwadate, H.
Eur. J. Biochem. 206, 691-696, 1992
A;Title: C-terminal sequencing of protein. A novel partial acid hydrolysis and analysis
A;Reference number: S23188; MUID:92298996; PMID:1606956
A;Accession: S23309
A;Molecule type: protein
A;Residues: 53-81 <TSU>
C;Comment: In pancreatic alpha-cells, proglucagon is processed to glicentin-related poly
stinal L cells, proglucagon is processed to truncated glucagon-like peptide 1, glucagon-
dulin.
C;Genetics:
A;Gene: GDB:GCG
A;Cross-references: GDB:119265; OMIM:138030
A;Map position: 2q36-2q37
A;Introns: 31/2; 85/2; 131/2; 179/2

C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; int
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status experimental <PGC>
F;21-89/Product: glicentin #status experimental <GLN>
F;21-50/Product: glicentin-related polypeptide #status predicted <GRPP>
F;53-89/Product: oxyntomodulin #status experimental <OXN>
F;53-81/Product: glucagon #status experimental <GCN>
F;92-178/Product: major proglucagon fragment #status experimental <MPGF>
F;92-127/Product: glucagon-like peptide 1 #status experimental <GL1>
F;98-127/Product: truncated glucagon-like peptide 1 #status experimental <TGL>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125

RESULT 3
GCGP
glucagon precursor - guinea pig
N;Alternate names: oxyntomodulin
N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucago
C;Species: Cavia porcellus (guinea pig)
C;Date: 30-Sep-1987 #sequence_revision 31-Dec-1992 #text_change 16-Jun-2000
C;Accession: A24856; A23849; A60323
R;Seino, S.; Welsh, M.; Bell, G.I.; Chan, S.J.; Steiner, D.F.
FEBS Lett. 203, 25-30, 1986
A;Title: Mutations in the guinea pig preproglucagon gene are restricted to a specific
A;Reference number: A24856; MUID:86248118; PMID:3755107
A;Accession: A24856
A;Molecule type: mRNA
A;Residues: 1-180 <SEI>
A;Cross-references: DDBJ:D00014; GB:N00014; NID:g220288; PIDN:BAA00010.1; PID:g220289
R;Huang, C.G.; Eng, J.; Pan, Y.C.E.; Hulmes, J.D.; Yalow, R.S.
Diabetes 35, 508-512, 1986
A;Title: Guinea pig glucagon differs from other mammalian glucagons.
A;Reference number: A23849; MUID:86165412; PMID:3956884
A;Accession: A23849
A;Molecule type: protein
A;Residues: 53-81 <HUA>
R;Conlon, J.M.; Hansen, H.F.; Schwartz, T.W.
Regul. Pept. 11, 309-320, 1985
A;Title: Primary structure of glucagon and a partial sequence of oxyntomodulin (gluca
A;Reference number: A60323; MUID:86017849; PMID:4048553
A;Accession: A60323
A;Molecule type: protein
A;Residues: 53-81 <CON>
A;Note: glucagon-37 was not completely sequenced
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-89/Product: glucagon-37 (oxyntomodulin) #status experimental <G37>
F;53-81/Product: glucagon #status experimental <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125

```
RESULT 4
GCRTDU
glucagon precursor - degu
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C;Species: Octodon degus (degu)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C;Accession: C36118
R;Nishi, M.; Steiner, D.F.
Mol. Endocrinol. 4, 1192-1198, 1990
A;Title: Cloning of complementary DNAs encoding islet amyloid polypeptide, insulin, and
A;Reference number: A36118; MUID:91155952; PMID:2293024
A;Accession: C36118
A;Molecule type: mRNA
A;Residues: 1-180 <NIS>
A;Cross-references: GB:M57688; NID:g202467; PIDN:AAA40588.1; PID:g202468
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
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  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 5
GCRT
glucagon precursor - rat
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C;Species: Rattus norvegicus (Norway rat)
C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 26-Feb-1999
C;Accession: A22655; A25190; A44198
R;Heinrich, G.; Gros, P.; Habener, J.F.
J. Biol. Chem. 259, 14082-14087, 1984
A;Title: Glucagon gene sequence: four of six exons encode separate functional domains of
A;Reference number: A22655; MUID:85054853; PMID:6094539
A;Accession: A22655
A;Molecule type: DNA
A;Residues: 1-180 <HEI>
A;Cross-references: EMBL:K02809
A;Note: the authors translated the codon TTG for residue 10 as Glu and ACC for residue 5
R;Mojsov, S.; Heinrich, G.; Wilson, I.B.; Ravazzola, M.; Orci, L.; Habener, J.F.
J. Biol. Chem. 261, 11880-11889, 1986
A;Title: Preproglucagon gene expression in pancreas and intestine diversifies at the lev
A;Reference number: A25190; MUID:86304324; PMID:3528148
A;Accession: A25190
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-180 <MOJ>
R;Heinrich, G.; Gros, P.; Lund, P.K.; Bentley, R.C.; Habener, J.F.
Endocrinology 115, 2176-2181, 1984
A;Title: Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded amino acid s
A;Reference number: A44198; MUID:85051023; PMID:6548696
A;Accession: A44198
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-180 <HE2>
A;Cross-references: GB:K02809; GB:K02810; GB:K02811; GB:K02812
C;Genetics:
A;Introns: 31/2; 85/2; 131/2; 179/2
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-13;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 6
GCHY
glucagon precursor - golden hamster
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-li
C;Species: Mesocricetus auratus (golden hamster)
C;Date: 13-Jun-1983 #sequence_revision 13-Jun-1983 #text_change 20-Mar-1998
C;Accession: A01539
R;Bell, G.I.; Santerre, R.F.; Mullenbach, G.T.
Nature 302, 716-718, 1983
A;Title: Hamster preproglucagon contains the sequence of glucagon and two related pep
A;Reference number: A01539; MUID:83167563; PMID:6835407
A;Accession: A01539
A;Molecule type: mRNA
A;Residues: 1-180 <BEL>
A;Cross-references: EMBL:J00059
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-13;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 7
GCBO
glucagon precursor - bovine
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-li
C;Species: Bos primigenius taurus (cattle)
C;Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 20-Mar-1998
C;Accession: A93970; A92081; A01538
R;Lopez, L.C.; Frazier, M.L.; Su, C.J.; Kumar, A.; Saunders, G.F.
Proc. Natl. Acad. Sci. U.S.A. 80, 5485-5489, 1983
A;Title: Mammalian pancreatic preproglucagon contains three glucagon-related peptides
A;Reference number: A93970; MUID:83299996; PMID:6577439
A;Accession: A93970
A;Molecule type: mRNA
A;Residues: 1-180 <LOP>
A;Cross-references: EMBL:K00107
R;Bromer, W.W.; Boucher, M.E.; Koffenberger Jr., J.E.
J. Biol. Chem. 246, 2822-2827, 1971
A;Title: Amino acid sequence of bovine glucagon.
A;Reference number: A92081; MUID:71166445; PMID:5102927
A;Accession: A92081
A;Molecule type: protein
A;Residues: 53-81 <BRO>
C;Superfamily: glucagon
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C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status experimental <GCN>
F;98-127/Product: glucagon-like peptide 1 #status experimental <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-13;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 8
A57294
glucagon precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 16-Jul-1999
C;Accession: A57294; S49903
R;Rothenberg, M.E.; Eilertson, C.D.; Klein, K.; Zhou, Y.; Lindberg, I.; McDonald, J.K.;
J. Biol. Chem. 270, 10136-10146, 1995
A;Title: Processing of mouse proglucagon by recombinant prohormone convertase 1 and immu
A;Reference number: A57294; MUID:95247722; PMID:7730317
A;Accession: A57294
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-180 <ROT>
A;Cross-references: EMBL:Z46845; NID:g599880; PIDN:CAA86902.1; PID:g599881
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas

  Query Match             100.0%;  Score 144;  DB 2;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-13;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 9
GCCH
glucagon precursor - chicken
N;Contains: glucagon; glucagon-like peptide 1
C;Species: Gallus gallus (chicken)
C;Date: 31-Dec-1991 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C;Accession: S09992; A92189; A60836; A01542
R;Hasegawa, S.; Terazono, K.; Nata, K.; Takada, T.; Yamamoto, H.; Okamoto, H.
FEBS Lett. 264, 117-120, 1990
A;Title: Nucleotide sequence determination of chicken glucagon precursor cDNA. Chicken p
A;Reference number: S09992; MUID:90249492; PMID:2338135
A;Accession: S09992
A;Molecule type: mRNA
A;Residues: 1-151 <HAS>
A;Cross-references: EMBL:Y07539; NID:g63749; PIDN:CAA68827.1; PID:g63750
R;Pollock, H.G.; Kimmel, J.R.
J. Biol. Chem. 250, 9377-9380, 1975
A;Title: Chicken glucagon. Isolation and amino acid sequence studies.
A;Reference number: A92189; MUID:76069271; PMID:1194290
A;Accession: A92189
A;Molecule type: protein
A;Residues: 55-83 <POL>
R;Huang, J.; Eng, J.; Yalow, R.S.
Horm. Metab. Res. 19, 542-544, 1987
A;Title: Chicken glucagon: sequence and potency in receptor assay.
A;Reference number: A60836; MUID:88113418; PMID:2828209
A;Accession: A60836
A;Molecule type: protein
A;Residues: 55-83 <HUA>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-151/Product: proglucagon #status predicted <PGC>
F;55-83/Product: glucagon #status experimental <GCN>
F;118-147/Product: glucagon-like peptide 1 #status predicted <GL1>
F;147/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

  Query Match             91.7%;  Score 132;  DB 1;  Length 151;
  Best Local Similarity   88.9%;  Pred. No. 6.1e-12;
  Matches   24;  Conservative    3;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
          |||||:|||::||||||||||||||||
Db    118 HAEGTYTSDITSYLEGQAAKEFIAWLV 144


RESULT 10
I51301
proglucagon - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51301
R;Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A;Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcrip
A;Reference number: A55895; MUID:95295739; PMID:7776976
A;Accession: I51301
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-206 <IRW>
A;Cross-references: GB:S78477; NID:g999386; PIDN:AAB34506.1; PID:g999387
C;Superfamily: glucagon
C;Keywords: duplication

  Query Match             91.7%;  Score 132;  DB 2;  Length 206;
  Best Local Similarity   88.9%;  Pred. No. 8.5e-12;
  Matches   24;  Conservative    3;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
          |||||:|||::||||||||||||||||
Db    118 HAEGTYTSDITSYLEGQAAKEFIAWLV 144


RESULT 11
B61125
glucagon-like peptide - American eel
C;Species: Anguilla rostrata (American eel)
C;Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C;Accession: B61125
R;Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A;Title: The primary structure of glucagon-like peptide but not insulin has been cons
A;Reference number: A61125; MUID:91340068; PMID:1874385
A;Accession: B61125
A;Molecule type: protein
A;Residues: 1-30 <CON>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication
F;1-30/Product: glucagon-like peptide #status experimental <GLP>
F;30/Modified site: amidated carboxyl end (Arg) #status predicted

  Query Match             81.9%;  Score 118;  DB 2;  Length 30;
  Best Local Similarity   80.8%;  Pred. No. 1.2e-10;
  Matches   21;  Conservative    4;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
          |||||:|||||||||: |||||||::||
Db      1 HAEGTYTSDVSSYLQDQAAKEFVSWL 26


RESULT 12
```

```
C61125
glucagon-like peptide - European eel
C;Species: Anguilla anguilla (European eel)
C;Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C;Accession: C61125
R;Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A;Title: The primary structure of glucagon-like peptide but not insulin has been conserv
A;Reference number: A61125; MUID:91340068; PMID:1874385
A;Accession: C61125
A;Molecule type: protein
A;Residues: 1-30 <CON>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication
F;1-30/Product: glucagon-like peptide #status experimental <GLP>
F;30/Modified site: amidated carboxyl end (Arg) #status experimental

  Query Match             81.9%;  Score 118;  DB 2;  Length 30;
  Best Local Similarity   80.8%;  Pred. No. 1.2e-10;
  Matches   21;  Conservative    4;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           |||||:||||||||: ||||||::||
Db       1 HAEGTYTSDVSSYLQDQAAKEFVSWL 26


RESULT 13
GCFGB
glucagon precursor - bullfrog (fragments)
N;Alternate names: oxyntomodulin
N;Contains: glucagon; glucagon-36 (oxyntomodulin); glucagon-like peptide 1; glucagon-lik
C;Species: Rana catesbeiana (bullfrog)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: B28091; C28091; D28091
R;Pollock, H.G.; Hamilton, J.W.; Rouse, J.B.; Ebner, K.E.; Rawitch, A.B.
J. Biol. Chem. 263, 9746-9751, 1988
A;Title: Isolation of peptide hormones from the pancreas of the bullfrog (Rana catesbeia
A;Reference number: A92730; MUID:88257102; PMID:3260236
A;Accession: B28091
A;Molecule type: protein
A;Residues: 1-36 <PO2>
A;Accession: C28091
A;Molecule type: protein
A;Residues: 37-68 <POL>
A;Accession: D28091
A;Molecule type: protein
A;Residues: 69-101 <PO3>
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F;1-36/Product: glucagon-36 (oxyntomodulin) #status experimental <G36>
F;1-29/Product: glucagon #status predicted <GCN>
F;37-67/Product: glucagon-like peptide 1 #status experimental <GL1>
F;69-101/Product: glucagon-like peptide 2 #status experimental <GL2>

  Query Match             81.9%;  Score 118;  DB 1;  Length 101;
  Best Local Similarity   75.0%;  Pred. No. 4.5e-10;
  Matches   21;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||:||||||:||||| :|||||: ||:|
Db      37 HADGTFTSDMSSYLEEKAAKEFVDWLIK 64


RESULT 14
GCIDC
glucagon precursor - channel catfish (fragments)
C;Species: Ictalurus punctatus (channel catfish)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: A05166; A05167
R;Andrews, P.C.; Ronner, P.
J. Biol. Chem. 260, 3910-3914, 1985
A;Title: Isolation and structures of glucagon and glucagon-like peptide from catfish pan
A;Reference number: A92514; MUID:85157536; PMID:3838546
A;Accession: A05166
A;Molecule type: protein
A;Residues: 1-29 <AND1>
A;Accession: A05167
A;Molecule type: protein
A;Residues: 30-63 <AND2>
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F;1-29/Product: glucagon #status experimental <GCN>
F;30-63/Product: glucagon-like peptide 1 #status experimental <GL1>

  Query Match             77.8%;  Score 112;  DB 1;  Length 63;
  Best Local Similarity   76.9%;  Pred. No. 2.1e-09;
  Matches   20;  Conservative    4;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           ||:||:||||||||: ||||:|| ||
Db      30 HADGTYTSDVSSYLQDQAAKDFITWL 55


RESULT 15
GCAF2
glucagon 2 precursor - American goosefish
N;Contains: glucagon; glucagon-like peptide 1
C;Species: Lophius americanus (American goosefish)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 21-Jul-2000
C;Accession: A05150
R;Lund, P.K.; Goodman, R.H.; Montminy, M.R.; Dee, P.C.; Habener, J.F.
J. Biol. Chem. 258, 3280-3284, 1983
A;Title: Anglerfish islet pre-proglucagon II. Nucleotide and corresponding amino acid
A;Reference number: A05150; MUID:83135785; PMID:6338015
A;Accession: A05150
A;Molecule type: mRNA
A;Residues: 1-122 <LUN>
A;Cross-references: GB:J00933; NID:g64021; PIDN:CAA23905.1; PID:g64022
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F;1-21/Domain: signal sequence #status predicted <SIG>
F;22-122/Product: proglucagon 2 #status predicted <PGC2>
F;52-80/Product: glucagon #status predicted <GCN>
F;89-119/Product: glucagon-like peptide 1 #status predicted <GL1>

  Query Match             77.8%;  Score 112;  DB 1;  Length 122;
  Best Local Similarity   73.1%;  Pred. No. 4.2e-09;
  Matches   19;  Conservative    6;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           ||:||:||||||||: ||||:|::||
Db      89 HADGTYTSDVSSYLQDQAAKDFVSWL 114


Search completed: March 19, 2003, 12:11:56
Job time : 16 secs
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GenCore version 5.1.4_p5_4578
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OM protein - protein search, using sw model

Run on: March 19, 2003, 12:06:27 ; Search time 12 Seconds
(without alignments)
96.778 Million cell updates/sec

Title: US-09-508-083-1
Perfect score: 144
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 144 | 100.0 | 158 | 1 | GLUC_PIG | P01274 sus scrofa |
| 2 | 144 | 100.0 | 180 | 1 | GLUC_BOVIN | P01272 bos taurus |
| 3 | 144 | 100.0 | 180 | 1 | GLUC_CAVPO | P05110 cavia porce |
| 4 | 144 | 100.0 | 180 | 1 | GLUC_HUMAN | P01275 homo sapien |
| 5 | 144 | 100.0 | 180 | 1 | GLUC_MESAU | P01273 mesocricetu |
| 6 | 144 | 100.0 | 180 | 1 | GLUC_MOUSE | P55095 mus musculu |
| 7 | 144 | 100.0 | 180 | 1 | GLUC_OCTDE | P22890 octodon deg |
| 8 | 144 | 100.0 | 180 | 1 | GLUC_RAT | P06883 rattus norv |
| 9 | 132 | 91.7 | 151 | 1 | GLUC_CHICK | P01277 gallus gall |
| 10 | 118 | 81.9 | 30 | 1 | GLUM_ANGAN | P41521 anguilla an |
| 11 | 118 | 81.9 | 103 | 1 | GLUC_RANCA | P15438 rana catesb |
| 12 | 112 | 77.8 | 122 | 1 | GLU2_LOPAM | P04092 lophius ame |
| 13 | 111 | 77.1 | 71 | 1 | GLUC_ICTPU | P04093 ictalurus p |
| 14 | 110 | 76.4 | 78 | 1 | GLUC_LEPSP | P09566 lepisosteus |
| 15 | 109 | 75.7 | 71 | 1 | GLUC_PIAME | P81880 piaractus m |
| 16 | 105 | 72.9 | 121 | 1 | GLUC_CARAU | P79695 carassius a |
| 17 | 104 | 72.2 | 68 | 1 | GLUC_ONCKI | P07449 oncorhynchu |
| 18 | 102.5 | 71.2 | 33 | 1 | GLU2_ORENI | P81027 oreochromis |
| 19 | 97 | 67.4 | 29 | 1 | GLUC_TORMA | P09567 torpedo mar |
| 20 | 97 | 67.4 | 96 | 1 | GLUC_MYOSC | P09686 myoxocephal |
| 21 | 95 | 66.0 | 29 | 1 | GLUC_SCYCA | P09687 scyliorhinu |
| 22 | 93 | 64.6 | 29 | 1 | GLUC_CALMI | P13189 callorhynch |
| 23 | 93 | 64.6 | 124 | 1 | GLU1_LOPAM | P01278 lophius ame |
| 24 | 90 | 62.5 | 29 | 1 | GLUC_DIDMA | P18108 didelphis m |
| 25 | 90 | 62.5 | 29 | 1 | GLUC_LAMFL | Q9prq9 lampetra fl |
| 26 | 90 | 62.5 | 29 | 1 | GLUC_RABIT | P25449 oryctolagus |
| 27 | 90 | 62.5 | 69 | 1 | GLUC_CANFA | P29794 canis famil |
| 28 | 88 | 61.1 | 29 | 1 | GLUC_ANAPL | P01276 anas platyr |
| 29 | 88 | 61.1 | 36 | 1 | GLU1_ORENI | P81026 oreochromis |
| 30 | 87 | 60.4 | 29 | 1 | GLUC_CHIBR | P31297 chinchilla |
| 31 | 86 | 59.7 | 29 | 1 | GLUC_PLAFE | P23062 platichthys |
| 32 | 83 | 57.6 | 75 | 1 | GLUC_AMICA | P33528 amia calva |
| 33 | 83 | 57.6 | 87 | 1 | EXE4_HELSU | P26349 heloderma s |
| 34 | 81 | 56.2 | 39 | 1 | EXE3_HELHO | P20394 heloderma h |
| 35 | 79 | 54.9 | 36 | 1 | GLUC_HYDCO | P09682 hydrolagus |
| 36 | 59 | 41.0 | 42 | 1 | GIP_BOVIN | P09680 bos taurus |
| 37 | 59 | 41.0 | 42 | 1 | GIP_PIG | P01281 sus scrofa |
| 38 | 59 | 41.0 | 72 | 1 | VIP_BOVIN | P81401 bos taurus |
| 39 | 59 | 41.0 | 72 | 1 | VIP_PIG | P01284 sus scrofa |
| 40 | 59 | 41.0 | 72 | 1 | VIP_RABIT | P32649 oryctolagus |
| 41 | 59 | 41.0 | 144 | 1 | GIP_MOUSE | P48756 mus musculu |
| 42 | 59 | 41.0 | 144 | 1 | GIP_RAT | Q06145 rattus norv |
| 43 | 58 | 40.3 | 153 | 1 | GIP_HUMAN | P09681 homo sapien |
| 44 | 58 | 40.3 | 170 | 1 | VIP_HUMAN | P01282 homo sapien |
| 45 | 58 | 40.3 | 170 | 1 | VIP_MOUSE | P32648 mus musculu |

ALIGNMENTS

RESULT 1
GLUC_PIG
ID GLUC_PIG STANDARD; PRT; 158 AA.
AC P01274;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-NOV-1990 (Rel. 16, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon precursor [Contains: Glicentin; Glicentin-related polypeptide
DE (GRPP); Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like
DE peptide 2 (GLP2)] (Fragment).
GN GCG.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE OF 1-69.
RX MEDLINE=81248172; PubMed=6894800;
RA Thim L., Moody A.J.;
RT "The primary structure of porcine glicentin (proglucagon).";
RL Regul. Pept. 2:139-150(1981).
RN [2]
RP SEQUENCE OF 1-69.
RX MEDLINE=82221776; PubMed=7045833;
RA Thim L., Moody A.J.;
RT "The amino acid sequence of porcine glicentin.";
RL Peptides 2 Suppl. 2:37-39(1981).
RN [3]
RP SEQUENCE OF 33-61.
RA Bromer W.W., Sinn L.G., Behrens O.K.;
RT "The amino acid sequence of glucagon. V. Location of amide groups,
RT acid degradation studies and summary of sequential evidence.";
RL J. Am. Chem. Soc. 79:2807-2810(1957).
RN [4]
RP SEQUENCE OF 78-107.
RX MEDLINE=89327238; PubMed=2753890;
RA Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;
RT "Complete sequences of glucagon-like peptide-1 from human and pig
RT small intestine.";
RL J. Biol. Chem. 264:12826-12829(1989).
RN [5]
RP SEQUENCE OF 111-158.
RX MEDLINE=88243712; PubMed=3379036;
RA Buhl T., Thim L., Kofod H., Orskov C., Harling H., Holst J.J.;
RT "Naturally occurring products of proglucagon 111-160 in the porcine
RT and human small intestine.";
RL J. Biol. Chem. 263:8621-8624(1988).
RN [6]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE=76051297; PubMed=171582;
RA Sasaki K., Dockerill S., Adamiak D.A., Tickle I.J., Blundell T.L.;
RT "X-ray analysis of glucagon and its relationship to receptor
RT binding.";
RL Nature 257:751-757(1975).
CC -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC RAISES THE BLOOD SUGAR LEVEL.

```
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       HUMAN SEQUENCE.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; A01540; GCPG.
DR   PDB; 1GCN; 30-SEP-83.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues;
KW   3D-structure.
FT   NON_TER       1      1
FT   PEPTIDE       1     69       GLICENTIN.
FT   PEPTIDE       1     30       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      33     61       GLUCAGON.
FT   PEPTIDE      78    107       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     126    158       GLUCAGON-LIKE PEPTIDE 2.
FT   HELIX        39     42
FT   TURN         43     45
FT   HELIX        46     55
FT   TURN         56     57
SQ   SEQUENCE   158 AA;  18212 MW;  28C6FCF257F333B2 CRC64;

  Query Match             100.0%;  Score 144;  DB 1;  Length 158;
  Best Local Similarity   100.0%;  Pred. No. 6e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db      78 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 105


RESULT 2
GLUC_BOVIN
ID   GLUC_BOVIN     STANDARD;      PRT;   180 AA.
AC   P01272;
DT   21-JUL-1986 (Rel. 01, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83299996; PubMed=6577439;
RA   Lopez L.C., Frazier M.L., Su C.-J., Kumar A., Saunders G.F.;
RT   "Mammalian pancreatic preproglucagon contains three glucagon-related
RT   peptides.";
RL   Proc. Natl. Acad. Sci. U.S.A. 80:5485-5489(1983).
RN   [2]
RP   SEQUENCE OF 53-81.
RX   MEDLINE=71166445; PubMed=5102927;
RA   Bromer W.W., Boucher M.E., Koffenberger J.E. Jr.;
RT   "Amino acid sequence of bovine glucagon.";
RL   J. Biol. Chem. 246:2822-2827(1971).
RN   [3]
RP   STRUCTURE BY NMR OF 53-81.
RX   MEDLINE=71166445; PubMed=6631957;
RA   Braun W., Wider G., Lee K.H., Wuthrich K.;
RT   "Conformation of glucagon in a lipid-water interphase by 1H nuclear
RT   magnetic resonance.";
RL   J. Mol. Biol. 169:921-948(1983).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; K00107; AAA30538.1; -.
DR   PIR; A01538; GCBO.
DR   PDB; 1KX6; 13-FEB-02.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   3D-structure.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20944 MW;  8D9B4FF05B9F15FF CRC64;

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.9e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 3
GLUC_CAVPO
ID   GLUC_CAVPO     STANDARD;      PRT;   180 AA.
AC   P05110;
DT   13-AUG-1987 (Rel. 05, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-37 (Oxyntomodulin); Glucagon-like peptide 1 (GLP1);
DE   Glucagon-like peptide 2 (GLP2)].
GN   GCG.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86248118; PubMed=3755107;
RA   Seino S., Welsh M., Bell G.I., Chan S.J., Steiner D.F.;
RT   "Mutations in the guinea pig preproglucagon gene are restricted to a
RT   specific portion of the prohormone sequence.";
RL   FEBS Lett. 203:25-30(1986).
RN   [2]
RP   SEQUENCE OF 53-81.
RX   MEDLINE=86165412; PubMed=3956884;
RA   Huang C.G., Eng J., Pan Y.-C.E., Hulmes J.D., Yalow R.S.;
RT   "Guinea pig glucagon differs from other mammalian glucagons.";
RL   Diabetes 35:508-512(1986).
RN   [3]
RP   PARTIAL SEQUENCE OF 53-89.
```

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RX   MEDLINE=86017849; PubMed=4048553;
RA   Conlon J.M., Hansen H.F., Schwartz T.W.;
RT   "Primary structure of glucagon and a partial sequence of
RT   oxyntomodulin (glucagon-37) from the guinea pig.";
RL   Regul. Pept. 11:309-320(1985).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; D00014; BAA00010.1; -.
DR   PIR; A24856; GCGP.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      53     89       GLUCAGON-37.
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20972 MW;  702FB181161D2776 CRC64;

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.9e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
          ||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 4
GLUC_HUMAN
ID   GLUC_HUMAN     STANDARD;      PRT;   180 AA.
AC   P01275;
DT   21-JUL-1986 (Rel. 01, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=88330860; PubMed=2901414;
RA   Drucker D.J., Asa S.;
RT   "Glucagon gene expression in vertebrate brain.";
RL   J. Biol. Chem. 263:13475-13478(1988).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86259053; PubMed=3725587;
RA   White J.W., Saunders G.F.;
RT   "Structure of the human glucagon gene.";
RL   Nucleic Acids Res. 14:4719-4730(1986).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=83271477; PubMed=6877358;
RA   Bell G.I., Sanchez-Pescador R., Laybourn P.J., Najarian R.C.;
RT   "Exon duplication and divergence in the human preproglucagon gene.";
RL   Nature 304:368-371(1983).
RN   [4]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreas;
RA   Strausberg R.;
RL   Submitted (MAR-2001) to the EMBL/GenBank/DDBJ databases.
RN   [5]
RP   SEQUENCE OF 53-81.
RA   Thomsen J., Kristiansen K., Brunfeldt K., Sundby F.;
RT   "The amino acid sequence of human glucagon.";
RL   FEBS Lett. 21:315-319(1972).
RN   [6]
RP   SEQUENCE OF 98-127.
RX   MEDLINE=89327238; PubMed=2753890;
RA   Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;
RT   "Complete sequences of glucagon-like peptide-1 from human and pig
RT   small intestine.";
RL   J. Biol. Chem. 264:12826-12829(1989).
RN   [7]
RP   X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF 53-81.
RX   MEDLINE=98334683; PubMed=9667960;
RA   Sturm N.S., Lin Y., Burley S.K., Krstenansky J.L., Ahn J.M.,
RA   Azizeh B.Y., Trivedi D., Hruby V.J.;
RT   "Structure-function studies on positions 17, 18, and 21 replacement
RT   analogues of glucagon: the importance of charged residues and salt
RT   bridges in glucagon biological activity.";
RL   J. Med. Chem. 41:2693-2700(1998).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- PHARMACEUTICAL: Available under the names Glucagon (Eli Lilly) and
CC       GlucaGen or Glucagon Novo Nordisk (Novo Nordisk). Used to treat
CC       severe hypoglycemia in insulin-dependent diabetics.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   -!- DATABASE: NAME=Glucagon at Eli Lilly;
CC       NOTE=Clinical information on Eli Lilly glucagon products;
CC       WWW="http://www.lillyDiabetes.com/Products/PatientInfo.cfm".
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; J04040; AAA52567.1; -.
DR   EMBL; X03991; CAA27627.1; -.
DR   EMBL; V01515; CAA24759.1; -.
DR   EMBL; BC005278; AAH05278.1; -.
DR   PIR; A24377; GCHU.
DR   PIR; S23309; S23309.
DR   PDB; 1BH0; 18-NOV-98.
DR   Genew; HGNC:4191; GCG.
DR   MIM; 138030; -.
DR   MIM; 231530; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
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KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Pharmaceutical; 3D-structure.
FT   SIGNAL        1     20
FT   PEPTIDE       21    50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE       53    81       GLUCAGON.
FT   PEPTIDE       98    127      GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE      146    178      GLUCAGON-LIKE PEPTIDE 2.
FT   CONFLICT      82    82       K -> N (IN REF. 3).
SQ   SEQUENCE   180 AA;  20909 MW;  7A99EEC629B2862C CRC64;

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.9e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 5
GLUC_MESAU
ID   GLUC_MESAU     STANDARD;      PRT;   180 AA.
AC   P01273;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Mesocricetus auratus (Golden hamster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC   Mesocricetus.
OX   NCBI_TaxID=10036;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83167563; PubMed=6835407;
RA   Bell G.I., Santerre R.F., Mullenbach G.T.;
RT   "Hamster preproglucagon contains the sequence of glucagon and two
RT   related peptides.";
RL   Nature 302:716-718(1983).
RN   [2]
RP   REVISIONS TO 12-15.
RA   Bell G.I.;
RL   Submitted (XXX-1985) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; J00059; AAA37074.1; -.
DR   PIR; A01539; GCHY.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL        1     20
FT   PEPTIDE       21    50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE       53    81       GLUCAGON.
FT   PEPTIDE       92    128      GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE      146    178      GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20954 MW;  02791B49D7AADD4B CRC64;

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.9e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 6
GLUC_MOUSE
ID   GLUC_MOUSE     STANDARD;      PRT;   180 AA.
AC   P55095;
DT   01-OCT-1996 (Rel. 34, Created)
DT   01-OCT-1996 (Rel. 34, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreatic islets;
RX   MEDLINE=95247722; PubMed=7730317;
RA   Rothenberg M.E., Eilertson C.D., Klein K., Zhou Y., Linberg I.,
RA   McDonald J.K., Mackin R.B., Noe B.D.;
RT   "Processing of mouse proglucagon by recombinant prohormone convertase
RT   1 and immunopurified prohormone convertase 2 in vitro.";
RL   J. Biol. Chem. 270:10136-10146(1995).
RN   [2]
RP   SEQUENCE FROM N.A.
RA   Shamsadin R., Knepel W.;
RT   "Mouse glucagon full length cDNA.";
RL   Submitted (JUN-2000) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Z46845; CAA86902.1; -.
DR   EMBL; AF276754; AAK96898.1; -.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:95674; Gcg.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL        1     20       BY SIMILARITY.
FT   PEPTIDE       21    50       GLICENTIN-RELATED POLYPEPTIDE.
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FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20906 MW;  595AA6DD9A589950 CRC64;

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.9e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 7
GLUC_OCTDE
ID   GLUC_OCTDE     STANDARD;      PRT;   180 AA.
AC   P22890;
DT   01-AUG-1991 (Rel. 19, Created)
DT   01-AUG-1991 (Rel. 19, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Octodon degus (Degu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Octodontidae; Octodon.
OX   NCBI_TaxID=10160;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91155952; PubMed=2293024;
RA   Nishi M., Steiner D.F.;
RT   "Cloning of complementary DNAs encoding islet amyloid polypeptide,
RT   insulin, and glucagon precursors from a New World rodent, the degu,
RT   Octodon degus.";
RL   Mol. Endocrinol. 4:1192-1198(1990).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M57688; AAA40588.1; -.
DR   PIR; C36118; GCRTDU.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      92    127       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
FT   MOD_RES     127    127       AMIDATION (G-128 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   180 AA;  21165 MW;  6E8836160A9A3051 CRC64;

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.9e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 8
GLUC_RAT
ID   GLUC_RAT       STANDARD;      PRT;   180 AA.
AC   P06883;
DT   01-JAN-1988 (Rel. 06, Created)
DT   01-JAN-1988 (Rel. 06, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85054853; PubMed=6094539;
RA   Heinrich G., Gros P., Habener J.F.;
RT   "Glucagon gene sequence. Four of six exons encode separate functional
RT   domains of rat pre-proglucagon.";
RL   J. Biol. Chem. 259:14082-14087(1984).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85051023; PubMed=6548696;
RA   Heinrich G., Gros P., Lund P.K., Bentley R.C., Habener J.F.;
RT   "Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded
RT   amino acid sequences of the rat pancreatic complementary
RT   deoxyribonucleic acid.";
RL   Endocrinology 115:2176-2181(1984).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86304324; PubMed=3528148;
RA   Mojsov S., Heinrich G., Wilson I.B., Ravazzola M., Orci L.,
RA   Habener J.F.;
RT   "Preproglucagon gene expression in pancreas and intestine diversifies
RT   at the level of post-translational processing.";
RL   J. Biol. Chem. 261:11880-11889(1986).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; K02813; AAA41235.1; -.
DR   EMBL; K02809; AAA41235.1; JOINED.
DR   EMBL; K02810; AAA41235.1; JOINED.
DR   EMBL; K02811; AAA41235.1; JOINED.
DR   EMBL; K02812; AAA41235.1; JOINED.
DR   PIR; A22655; GCRT.
DR   PIR; A44198; A44198.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
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DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20846 MW;  76931409D03C7978 CRC64;

  Query Match             100.0%;  Score 144;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.9e-14;
  Matches   28;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125


RESULT 9
GLUC_CHICK
ID   GLUC_CHICK     STANDARD;      PRT;   151 AA.
AC   P01277;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-AUG-1990 (Rel. 15, Last sequence update)
DT   15-JUL-1999 (Rel. 38, Last annotation update)
DE   Glucagon precursor.
OS   Gallus gallus (Chicken), and
OS   Meleagris gallopavo (Common turkey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031, 9103;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   SPECIES=Chicken; TISSUE=Pancreas;
RX   MEDLINE=90249492; PubMed=2338135;
RA   Hasegawa S., Terazono K., Nata K., Takada T., Yamamoto H.,
RA   Okamoto H.;
RT   "Nucleotide sequence determination of chicken glucagon precursor
RT   cDNA. Chicken preproglucagon does not contain glucagon-like peptide
RT   II.";
RL   FEBS Lett. 264:117-120(1990).
RN   [2]
RP   SEQUENCE OF 55-83.
RC   SPECIES=Chicken;
RX   MEDLINE=76069271; PubMed=1194290;
RA   Pollock H.G., Kimmel J.R.;
RT   "Chicken glucagon. Isolation and amino acid sequence studies.";
RL   J. Biol. Chem. 250:9377-9380(1975).
RN   [3]
RP   COMPOSITION, AND SEQUENCE OF 55-83.
RC   SPECIES=M.gallopavo;
RX   MEDLINE=73074118; PubMed=4645932;
RA   Markussen J., Frandsen E.K., Heding L.G., Sundby F.;
RT   "Turkey glucagon: crystallization, amino acid composition and
RT   immunology.";
RL   Horm. Metab. Res. 4:360-363(1972).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: THE COMPOSITION OF TURKEY GLUCAGON APPEARS TO BE
CC       IDENTICAL WITH CHICKEN.
CC   -!- MISCELLANEOUS: CHICKEN PREPROGLUCAGON DOES NOT CONTAIN
CC       GLUCAGON-LIKE PEPTIDE II.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Y07539; CAA68827.1; -.
DR   PIR; S09992; GCCH.
DR   PIR; A91740; A91740.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL        1     22
FT   CHAIN        23    151       PROGLUCAGON.
FT   PEPTIDE      55     83       GLUCAGON.
FT   PROPEP       86    118
FT   PEPTIDE     118    147       GLUCAGON-LIKE PEPTIDE.
FT   MOD_RES     147    147       AMIDATION (G-148 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   151 AA;  17520 MW;  B6C0D87536C0AEB5 CRC64;

  Query Match             91.7%;  Score 132;  DB 1;  Length 151;
  Best Local Similarity   88.9%;  Pred. No. 3.2e-12;
  Matches   24;  Conservative    3;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
           |||||:|||::||||||||||||||||
Db     118 HAEGTYTSDITSYLEGQAAKEFIAWLV 144


RESULT 10
GLUM_ANGAN
ID   GLUM_ANGAN     STANDARD;      PRT;    30 AA.
AC   P41521;
DT   01-NOV-1995 (Rel. 32, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   01-NOV-1995 (Rel. 32, Last annotation update)
DE   Glucagon-like peptide (GLP).
OS   Anguilla anguilla (European freshwater eel), and
OS   Anguilla rostrata (American eel).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Anguilliformes; Anguillidae;
OC   Anguilla.
OX   NCBI_TaxID=7936, 7938;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=91340068; PubMed=1874385;
RA   Conlon J.M., Andrews P.C., Thim L., Moon T.W.;
RT   "The primary structure of glucagon-like peptide but not insulin has
RT   been conserved between the American eel, Anguilla rostrata and the
RT   European eel, Anguilla anguilla.";
RL   Gen. Comp. Endocrinol. 82:23-32(1991).
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; B61125; B61125.
DR   PIR; C61125; C61125.
DR   HSSP; P01275; 1BH0.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation.
FT   MOD_RES      30     30       AMIDATION.
SQ   SEQUENCE   30 AA;  3376 MW;  592DA5EABD6E49D0 CRC64;

  Query Match             81.9%;  Score 118;  DB 1;  Length 30;
  Best Local Similarity   80.8%;  Pred. No. 6.8e-11;
  Matches   21;  Conservative    4;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
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          |||||:||||||||: ||||||::||
Db        1 HAEGTYTSDVSSYLQDQAAKEFVSWL 26


RESULT 11
GLUC_RANCA
ID   GLUC_RANCA     STANDARD;      PRT;   103 AA.
AC   P15438; P15439; P15440;
DT   01-APR-1990 (Rel. 14, Created)
DT   01-JUL-1993 (Rel. 26, Last sequence update)
DT   01-JUL-1993 (Rel. 26, Last annotation update)
DE   Glucagon precursor (Fragments).
OS   Rana catesbeiana (Bull frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae; Rana.
OX   NCBI_TaxID=8400;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=88257102; PubMed=3260236;
RA   Pollock H.G., Hamilton J.W., Rouse J.B., Ebner K.E., Rawitch A.B.;
RT   "Isolation of peptide hormones from the pancreas of the bullfrog
RT   (Rana catesbeiana). Amino acid sequences of pancreatic polypeptide,
RT   oxyntomodulin, and two glucagon-like peptides.";
RL   J. Biol. Chem. 263:9746-9751(1988).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       OTHER SPECIES SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; B28091; GCFGB.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone.
FT   PEPTIDE       1     29       GLUCAGON.
FT   PEPTIDE       1     36       GLUCAGON-36 (OXYNTOMODULIN).
FT   PEPTIDE      39     70       GLUCAGON-LIKE PEPTIDE 1.
FT   NON_CONS     70     71
FT   PEPTIDE      71    103       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   103 AA;  11719 MW;  316287B7BAE1C8F7 CRC64;

  Query Match             81.9%;  Score 118;  DB 1;  Length 103;
  Best Local Similarity   75.0%;  Pred. No. 2.4e-10;
  Matches   21;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||:||||:||||| :|||||: ||:|
Db      39 HADGTFTSDMSSYLEEKAAKEFVDWLIK 66


RESULT 12
GLU2_LOPAM
ID   GLU2_LOPAM     STANDARD;      PRT;   122 AA.
AC   P04092;
DT   01-NOV-1986 (Rel. 03, Created)
DT   01-NOV-1986 (Rel. 03, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon II precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon II; Glucagon-like peptide II].
OS   Lophius americanus (American goosefish) (Anglerfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Paracanthopterygii; Lophiiformes; Lophiidae; Lophius.
OX   NCBI_TaxID=8073;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83135785; PubMed=6338015;
RA   Lund P.K., Goodman R.H., Montminy M.R., Dee P.C., Habener J.F.;
RT   "Anglerfish islet pre-proglucagon II. Nucleotide and corresponding
RT   amino acid sequence of the cDNA.";
RL   J. Biol. Chem. 258:3280-3284(1983).
RN   [2]
RP   PROCESSING.
RX   MEDLINE=86286913; PubMed=3526301;
RA   Noe B.D., Andrews P.C.;
RT   "Specific glucagon-related peptides isolated from anglerfish islets
RT   are metabolic cleavage products of (pre)proglucagon-II.";
RL   Peptides 7:331-339(1986).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; V00632; CAA23905.1; -.
DR   PIR; A05150; GCAF2.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL        1     21
FT   PEPTIDE      22     49       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      52     80       GLUCAGON II.
FT   PROPEP       83     86
FT   PEPTIDE      89    119       GLUCAGON-LIKE PEPTIDE II.
SQ   SEQUENCE   122 AA;  14171 MW;  5140AC47EF915519 CRC64;

  Query Match             77.8%;  Score 112;  DB 1;  Length 122;
  Best Local Similarity   73.1%;  Pred. No. 2.1e-09;
  Matches   19;  Conservative    6;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           ||:||:||||||||: ||||:|::||
Db      89 HADGTYTSDVSSYLQDQAAKDFVSWL 114


RESULT 13
GLUC_ICTPU
ID   GLUC_ICTPU     STANDARD;      PRT;    71 AA.
AC   P04093;
DT   01-NOV-1986 (Rel. 03, Created)
DT   01-MAR-1989 (Rel. 10, Last sequence update)
DT   01-NOV-1990 (Rel. 16, Last annotation update)
DE   Glucagon precursor (Fragment).
OS   Ictalurus punctatus (Channel catfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Siluriformes;
OC   Ictaluridae; Ictalurus.
OX   NCBI_TaxID=7998;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=87156787; PubMed=3030323;
RA   Hoosein N.M., Mahrenholz A.M., Andrews P.C., Gurd R.S.;
RT   "Biological activities of catfish glucagon and glucagon-like
RT   peptide.";
RL   Biochem. Biophys. Res. Commun. 143:87-92(1987).
RN   [2]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
```

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RX   MEDLINE=85157536; PubMed=3838546;
RA   Andrews P.C., Ronner P.;
RT   "Isolation and structures of glucagon and glucagon-like peptide from
RT   catfish pancreas.";
RL   J. Biol. Chem. 260:3910-3914(1985).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       AMERICAN GOOSEFISH SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; A05166; GCIDC.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone.
FT   NON_TER       1      1
FT   PEPTIDE       1     29       GLUCAGON.
FT   PEPTIDE      38     71       GLUCAGON-LIKE PEPTIDE.
FT   CONFLICT     53     53       E -> D (IN REF. 2).
FT   NON_TER      71     71
SQ   SEQUENCE   71 AA;  8173 MW;  24688E79AD981A8F CRC64;

  Query Match             77.1%;  Score 111;  DB 1;  Length 71;
  Best Local Similarity   76.9%;  Pred. No. 1.7e-09;
  Matches   20;  Conservative    4;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           ||:||:||||||||: ||||:|| ||
Db      38 HADGTYTSDVSSYLQEQAAKDFITWL 63


RESULT 14
GLUC_LEPSP
ID   GLUC_LEPSP     STANDARD;      PRT;    78 AA.
AC   P09566;
DT   01-MAR-1989 (Rel. 10, Created)
DT   01-NOV-1990 (Rel. 16, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glucagon; Glucagon-36 (Oxyntomodulin);
DE   Glucagon-like peptide] (Fragment).
OS   Lepisosteus spatula (Alligator gar) (Atractosteus spatula).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Semionotiformes; Lepisosteidae;
OC   Lepisosteus.
OX   NCBI_TaxID=7917;
RN   [1]
RP   SEQUENCE OF 1-36 AND 45-78.
RC   TISSUE=Pancreas;
RX   MEDLINE=88196798; PubMed=3282974;
RA   Pollock H.G., Kimmel J.R., Ebner K.E., Hamilton J.W., Rouse J.B.,
RA   Lance V., Rawitch A.B.;
RT   "Isolation of alligator gar (Lepisosteus spatula) glucagon,
RT   oxyntomodulin, and glucagon-like peptide: amino acid sequences of
RT   oxyntomodulin and glucagon-like peptide.";
RL   Gen. Comp. Endocrinol. 69:133-140(1988).
RN   [2]
RP   PRELIMINARY SEQUENCE OF 1-29.
RC   TISSUE=Pancreas;
RX   MEDLINE=88030594; PubMed=3311873;
RA   Pollock H.G., Kimmel J.R., Hamilton J.W., Rouse J.B., Ebner K.E.,
RA   Lance V., Rawitch A.B.;
RT   "Isolation and structures of alligator gar (Lepisosteus spatula)
RT   insulin and pancreatic polypeptide.";
RL   Gen. Comp. Endocrinol. 67:375-382(1987).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       AMERICAN GOOSEFISH SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; S06339; GCGXA.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone.
FT   PEPTIDE       1     29       GLUCAGON.
FT   PEPTIDE       1     36       GLUCAGON-36.
FT   PEPTIDE      45     78       GLUCAGON-LIKE PEPTIDE.
SQ   SEQUENCE   78 AA;  8990 MW;  30106496271594E0 CRC64;

  Query Match             76.4%;  Score 110;  DB 1;  Length 78;
  Best Local Similarity   73.1%;  Pred. No. 2.6e-09;
  Matches   19;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           ||:||:||||||||: ||||:|: ||
Db      45 HADGTYTSDVSSYLQDQAAKKFVTWL 70


RESULT 15
GLUC_PIAME
ID   GLUC_PIAME     STANDARD;      PRT;    71 AA.
AC   P81880;
DT   30-MAY-2000 (Rel. 39, Created)
DT   30-MAY-2000 (Rel. 39, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Glucagon precursor (Fragment).
OS   Piaractus mesopotamicus (Pacu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Characiformes;
OC   Characidae; Piaractus.
OX   NCBI_TaxID=42528;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=99259587; PubMed=10327603;
RA   de Lima J.A., Oliveira B., Conlon J.M.;
RT   "Purification and characterization of insulin and peptides derived
RT   from proglucagon and prosomatostatin from the fruit-eating fish, the
RT   pacu Piaractus mesopotamicus.";
RL   Comp. Biochem. Physiol. 122B:127-135(1999).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       OTHER FISH SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone.
FT   NON_TER       1      1
FT   PEPTIDE       1     29       GLUCAGON.
FT   PEPTIDE      38     71       GLUCAGON-LIKE PEPTIDE.
FT   NON_TER      71     71
SQ   SEQUENCE   71 AA;  8146 MW;  F66A3CA2DD9806C5 CRC64;

  Query Match             75.7%;  Score 109;  DB 1;  Length 71;
  Best Local Similarity   73.1%;  Pred. No. 3.4e-09;
  Matches   19;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           ||:||:|||||:||: ||||:|| ||
Db      38 HADGTYTSDVSAYLQDQAAKDFITWL 63
```

Search completed: March 19, 2003, 12:10:55
Job time : 13 secs

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GenCore version 5.1.4_p5_4578
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OM protein - protein search, using sw model

Run on: March 19, 2003, 12:09:02 ; Search time 29 Seconds
(without alignments)
198.942 Million cell updates/sec

Title: US-09-508-083-1
Perfect score: 144
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 144 | 100.0 | 180 | 6 | Q95LG0 | Q95lg0 canis famil |
| 2 | 132 | 91.7 | 206 | 13 | Q91410 | Q91410 gallus gall |
| 3 | 126 | 87.5 | 204 | 13 | O12956 | O12956 heloderma s |
| 4 | 118 | 81.9 | 220 | 13 | Q8UWL9 | Q8uwl9 hoplobatrac |
| 5 | 114 | 79.2 | 266 | 13 | O42143 | O42143 xenopus lae |
| 6 | 109 | 75.7 | 72 | 13 | Q91409 | Q91409 oncorhynchu |
| 7 | 109 | 75.7 | 178 | 13 | Q91971 | Q91971 oncorhynchu |
| 8 | 109 | 75.7 | 178 | 13 | Q91189 | Q91189 oncorhynchu |
| 9 | 109 | 75.7 | 219 | 13 | O42144 | O42144 xenopus lae |
| 10 | 102 | 70.8 | 160 | 13 | Q9PUR1 | Q9pur1 petromyzon |
| 11 | 98 | 68.1 | 121 | 13 | Q9DDE6 | Q9dde6 brachydanio |
| 12 | 95 | 66.0 | 62 | 13 | Q9PRW9 | Q9prw9 scyliorhinu |
| 13 | 88 | 61.1 | 96 | 13 | Q9DG43 | Q9dg43 ambloplites |
| 14 | 83 | 57.6 | 120 | 13 | Q9PUR0 | Q9pur0 petromyzon |
| 15 | 59 | 41.0 | 130 | 11 | Q9CVF1 | Q9cvf1 mus musculu |
| 16 | 59 | 41.0 | 144 | 11 | Q9D887 | Q9d887 mus musculu |
| 17 | 59 | 41.0 | 389 | 2 | Q93IH2 | Q93ih2 wolinella s |
| 18 | 58 | 40.3 | 171 | 11 | Q9D2Z7 | Q9d2z7 mus musculu |
| 19 | 54.5 | 37.8 | 426 | 16 | P71006 | P71006 bacillus su |
| 20 | 53 | 36.8 | 172 | 13 | Q9DE29 | Q9de29 brachydanio |
| 21 | 52.5 | 36.5 | 427 | 17 | Q8TLY0 | Q8tly0 methanosarc |
| 22 | 52 | 36.1 | 138 | 13 | Q98SP4 | Q98sp4 oncorhynchu |
| 23 | 52 | 36.1 | 171 | 13 | Q9PUF8 | Q9puf8 xenopus lae |
| 24 | 52 | 36.1 | 173 | 13 | Q98SP5 | Q98sp5 oncorhynchu |
| 25 | 52 | 36.1 | 175 | 13 | Q90XZ4 | Q90xz4 ictalurus p |
| 26 | 51.5 | 35.8 | 285 | 17 | Q8TPJ9 | Q8tpj9 methanosarc |
| 27 | 51 | 35.4 | 352 | 5 | Q9XXQ1 | Q9xxq1 caenorhabdi |
| 28 | 51 | 35.4 | 810 | 4 | Q9NTW8 | Q9ntw8 homo sapien |
| 29 | 51 | 35.4 | 867 | 4 | Q9UFX9 | Q9ufx9 homo sapien |
| 30 | 50.5 | 35.1 | 372 | 10 | Q9XFW9 | Q9xfw9 cicer ariet |
| 31 | 50 | 34.7 | 89 | 13 | Q98SP6 | Q98sp6 anas platyr |
| 32 | 50 | 34.7 | 244 | 16 | Q8Z1U5 | Q8z1u5 salmonella |
| 33 | 50 | 34.7 | 331 | 5 | O18301 | O18301 caenorhabdi |
| 34 | 49 | 34.0 | 175 | 13 | Q98TU3 | Q98tu3 brachydanio |
| 35 | 49 | 34.0 | 315 | 11 | Q9D3P0 | Q9d3p0 mus musculu |
| 36 | 49 | 34.0 | 504 | 11 | Q99M45 | Q99m45 mus musculu |
| 37 | 49 | 34.0 | 505 | 11 | P97770 | P97770 mus musculu |
| 38 | 49 | 34.0 | 571 | 5 | Q966F0 | Q966f0 caenorhabdi |
| 39 | 49 | 34.0 | 576 | 5 | Q9BIJ4 | Q9bij4 caenorhabdi |
| 40 | 49 | 34.0 | 589 | 5 | Q9N5B9 | Q9n5b9 caenorhabdi |
| 41 | 49 | 34.0 | 613 | 5 | Q8WSP1 | Q8wsp1 caenorhabdi |
| 42 | 49 | 34.0 | 634 | 3 | Q9HEE5 | Q9hee5 neurospora |
| 43 | 49 | 34.0 | 786 | 5 | Q9N5B7 | Q9n5b7 caenorhabdi |
| 44 | 49 | 34.0 | 835 | 5 | Q9N5B8 | Q9n5b8 caenorhabdi |
| 45 | 48 | 33.3 | 28 | 13 | Q9PRN8 | Q9prn8 carassius a |

ALIGNMENTS

RESULT 1
Q95LG0
ID Q95LG0 PRELIMINARY; PRT; 180 AA.
AC Q95LG0;
DT 01-DEC-2001 (TrEMBLrel. 19, Created)
DT 01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT 01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE Preproglucagon.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX NCBI_TaxID=9615;
RN [1]
RP SEQUENCE FROM N.A.
RA Irwin D.M.;
RT "cDNA cloning of proglucagon from the stomach and pancreas of the
RT dog.";
RL Submitted (SEP-2000) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AF308439; AAL09425.1; -.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 3.
DR PROSITE; PS00260; GLUCAGON; UNKNOWN_3.
SQ SEQUENCE 180 AA; 21114 MW; 80F66941AFC324FD CRC64;

Query Match 100.0%; Score 144; DB 6; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.5e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 125

RESULT 2
Q91410
ID Q91410 PRELIMINARY; PRT; 206 AA.
AC Q91410;
DT 01-NOV-1996 (TrEMBLrel. 01, Created)
DT 01-NOV-1996 (TrEMBLrel. 01, Last sequence update)

```
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Proglucagon.
GN   PROGLUCAGON.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
DR   EMBL; S78477; AAB34506.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
SQ   SEQUENCE   206 AA;  23875 MW;  AB299E1B02FC6AA4 CRC64;

  Query Match             91.7%;  Score 132;  DB 13;  Length 206;
  Best Local Similarity   88.9%;  Pred. No. 5.1e-12;
  Matches   24;  Conservative    3;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
           |||||:|||::||||||||||||||||||
Db     118 HAEGTYTSDITSYLEGQAAKEFIAWLV 144


RESULT 3
O12956
ID   O12956      PRELIMINARY;      PRT;   204 AA.
AC   O12956; O12955;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon precursor.
OS   Heloderma suspectum (Gila monster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Anguimorpha; Helodermatidae;
OC   Heloderma.
OX   NCBI_TaxID=8554;
RN   [1]
RP   SEQUENCE FROM N.A., ALTERNATIVE SPLICING, AND TISSUE SPECIFICITY.
RC   TISSUE=INTESTINE, AND PANCREAS;
RX   MEDLINE=97172477; PubMed=9020121;
RA   Chen Y.E., Drucker D.J.;
RT   "Tissue-specific expression of unique mRNAs that encode proglucagon-
RT   derived peptides or exendin 4 in the lizard.";
RL   J. Biol. Chem. 272:4108-4115(1997).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; LPII (SHOWN HERE) AND LPI; ARE
CC       PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- TISSUE SPECIFICITY: ISOFORM LPII IS EXPRESSED IN BOTH PANCREAS AND
CC       INTESTINE. EXPRESSION OF ISOFORM LPI IS RESTRICTED TO THE
CC       PANCREAS. NEITHER ISOFORM IS DETECTED IN SALIVARY GLAND.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U77612; AAB51129.1; -.
DR   EMBL; U77611; AAB51128.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing.
FT   SIGNAL       1     20       BY SIMILARITY.
FT   PEPTIDE      21    50       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE      53    81       GLUCAGON.
FT   PEPTIDE      116   145      GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE      164   196      GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC     149   149      D -> E (IN ISOFORM LPI).
FT   VARSPLIC     150   204      MISSING (IN ISOFORM LPI).
SQ   SEQUENCE   204 AA;  23553 MW;  B132E3FE46873E72 CRC64;

  Query Match             87.5%;  Score 126;  DB 13;  Length 204;
  Best Local Similarity   85.2%;  Pred. No. 4.2e-11;
  Matches   23;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
           ||:| :|||:||||||||||||||||||
Db     116 HADGRYTSDISSYLEGQAAKEFIAWLV 142


RESULT 4
Q8UWL9
ID   Q8UWL9      PRELIMINARY;      PRT;   220 AA.
AC   Q8UWL9;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Proglucagon.
OS   Hoplobatrachus rugulosus.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae;
OC   Hoplobatrachus.
OX   NCBI_TaxID=110072;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Yeung C.-M., Chow B.K.C.;
RT   "Identification of a proglucagon cDNA from Rana tigrina rugulosa that
RT   encodes two GLP-1s.";
RL   Gen. Comp. Endocrinol. 124:0-0(2001).
DR   EMBL; AF324209; AAL35758.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 4.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 4.
DR   PROSITE; PS00260; GLUCAGON; UNKNOWN_4.
SQ   SEQUENCE   220 AA;  25615 MW;  C72D926E7F89E381 CRC64;

  Query Match             81.9%;  Score 118;  DB 13;  Length 220;
  Best Local Similarity   75.0%;  Pred. No. 7.5e-10;
  Matches   21;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           |||||||||::|||| :|||||: ||:|
Db     135 HAEGTFTSDMTSYLEEKAAKEFVDWLIK 162


RESULT 5
O42143
ID   O42143      PRELIMINARY;      PRT;   266 AA.
AC   O42143;
DT   01-JAN-1998 (TrEMBLrel. 05, Created)
DT   01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon I precursor [Contains: Glucagon; glucagon-like peptide 1A
DE   (GLP-1A); glucagon-like peptide 1B (GLP-1B); glucagon-like peptide 1C
DE   (GLP-1C); glucagon-like peptide 2 (GLP-2)].
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=PANCREAS;
```

```
RX   MEDLINE=97368292; PubMed=9223287;
RA   Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
RA   Wheeler M.B.;
RT   "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
RT   insulinotropic properties.";
RL   Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; 1 (SHOWN HERE) AND 2; ARE
CC       PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; AF004432; AAB65660.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 5.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 5.
DR   PROSITE; PS00260; GLUCAGON; 5.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family; Alternative splicing.
FT   SIGNAL        1      ?       POTENTIAL.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      97    133       GLUCAGON-LIKE PEPTIDE 1A.
FT   PEPTIDE     142    173       GLUCAGON-LIKE PEPTIDE 1B.
FT   PEPTIDE     180    211       GLUCAGON-LIKE PEPTIDE 1C.
FT   PEPTIDE     227    259       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC    214    261       MISSING (IN ISOFORM 2).
SQ   SEQUENCE   266 AA;  30951 MW;  544F7BBC20AF872C CRC64;

  Query Match             79.2%;  Score 114;  DB 13;  Length 266;
  Best Local Similarity   67.9%;  Pred. No. 3.8e-09;
  Matches   19;  Conservative    7;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           |||||||:|:::||| :|||||: ||:|
Db     180 HAEGTFTNDMTNYLEEKAAKEFVGWLIK 207


RESULT 6
Q91409
ID   Q91409      PRELIMINARY;      PRT;    72 AA.
AC   Q91409; Q91232;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   PROGLUCAGON (Fragment).
OS   Oncorhynchus tschawytscha (Chinook salmon) (King salmon).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=74940;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
DR   EMBL; S78474; AAD14283.1; -.
DR   EMBL; U19920; AAC59670.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; UNKNOWN_1.
FT   NON_TER       1      1
SQ   SEQUENCE   72 AA;  8293 MW;  8584352B1C260A31 CRC64;

  Query Match             75.7%;  Score 109;  DB 13;  Length 72;
  Best Local Similarity   69.2%;  Pred. No. 4.9e-09;
  Matches   18;  Conservative    7;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           ||:||:|||||:||: ||||:|::||
Db      39 HADGTYTSDVSTYLQDQAAKDFVSWL 64


RESULT 7
Q91971
ID   Q91971      PRELIMINARY;      PRT;   178 AA.
AC   Q91971; Q91408; Q91188; Q92169;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon I precursor.
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=DISTAL SMALL INTESTINE, AND PANCREAS;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; INTESTINAL (SHOWN HERE) AND
CC       PANCREATIC; ARE PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U19913; AAC59667.1; -.
DR   EMBL; U19917; AAC59669.1; -.
DR   EMBL; U19918; AAC60212.1; -.
DR   EMBL; U19919; AAC60213.1; -.
DR   EMBL; U19918; AAC60213.1; JOINED.
DR   EMBL; S78475; AAB34505.1; -.
DR   EMBL; S78473; AAB34504.2; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing; Multigene family.
FT   SIGNAL        1      ?       POTENTIAL.
FT   PEPTIDE       ?     49       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE      52     80       GLUCAGON.
FT   PEPTIDE      85    120       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     137    169       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC    124    178       MISSING (IN PANCREATIC ISOFORM).
SQ   SEQUENCE   178 AA;  20034 MW;  5CF6980CF2A9D58E CRC64;

  Query Match             75.7%;  Score 109;  DB 13;  Length 178;
  Best Local Similarity   69.2%;  Pred. No. 1.4e-08;
  Matches   18;  Conservative    7;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           ||:||:|||||:||: ||||:|::||
Db      90 HADGTYTSDVSTYLQDQAAKDFVSWL 115


RESULT 8
Q91189
ID   Q91189      PRELIMINARY;      PRT;   178 AA.
AC   Q91189; Q92168;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon II precursor.
```

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OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=DISTAL SMALL INTESTINE, AND PANCREAS;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; INTESTINAL (SHOWN HERE) AND
CC       PANCREATIC; ARE PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U19914; AAC59668.1; -.
DR   EMBL; U19916; AAC60210.1; -.
DR   EMBL; U19915; AAC60210.1; JOINED.
DR   EMBL; U19915; AAC60209.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; UNKNOWN_2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing; Multigene family.
FT   SIGNAL       1      ?       POTENTIAL.
FT   PEPTIDE      ?     49       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE     52     80       GLUCAGON.
FT   PEPTIDE     85    120       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE    137    169       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC   124    178       MISSING (IN PANCREATIC ISOFORM).
SQ   SEQUENCE   178 AA;  19998 MW;  E89D73866CD91C66 CRC64;

  Query Match             75.7%;  Score 109;  DB 13;  Length 178;
  Best Local Similarity   69.2%;  Pred. No. 1.4e-08;
  Matches   18;  Conservative    7;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           ||:||:|||||:||: ||||:|::||
Db      90 HADGTYTSDVSTYLQDQAAKDFVSWL 115


RESULT 9
O42144
ID   O42144      PRELIMINARY;      PRT;   219 AA.
AC   O42144;
DT   01-JAN-1998 (TrEMBLrel. 05, Created)
DT   01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon II precursor [Contains: Glucagon; glucagon-like peptide 1A
DE   (GLP-1A); glucagon-like peptide 1B (GLP-1B); glucagon-like peptide 1C
DE   (GLP-1C)].
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=PANCREAS;
RX   MEDLINE=97368292; PubMed=9223287;
RA   Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
RA   Wheeler M.B.;
RT   "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
RT   insulinotropic properties.";
RL   Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; AF004433; AAB65661.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 4.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 4.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family.
FT   SIGNAL       1     20       POTENTIAL.
FT   PEPTIDE     53     81       GLUCAGON.
FT   PEPTIDE     97    133       GLUCAGON-LIKE PEPTIDE 1A.
FT   PEPTIDE    142    173       GLUCAGON-LIKE PEPTIDE 1B.
FT   PEPTIDE    180    211       GLUCAGON-LIKE PEPTIDE 1C.
SQ   SEQUENCE   219 AA;  25271 MW;  ACC699233C362CE0 CRC64;

  Query Match             75.7%;  Score 109;  DB 13;  Length 219;
  Best Local Similarity   66.7%;  Pred. No. 1.8e-08;
  Matches   18;  Conservative    7;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
           |||||||:|:::||| :|||||: ||:
Db     180 HAEGTFTNDMTNYLEEKAAKEFVGWLI 206


RESULT 10
Q9PUR1
ID   Q9PUR1      PRELIMINARY;      PRT;   160 AA.
AC   Q9PUR1; Q9PRZ8; Q9PRZ7;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Glucagon I precursor [Contains: Glucagon; glucagon-like peptide 1
DE   (GLP-1); glucagon-like peptide 2 (GLP-2)].
OS   Petromyzon marinus (Sea lamprey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Hyperoartia;
OC   Petromyzontiformes; Petromyzontidae; Petromyzon.
OX   NCBI_TaxID=7757;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=INTESTINE;
RX   MEDLINE=20022986; PubMed=10555286;
RA   Irwin D.M., Huner O., Youson J.H.;
RT   "Lamprey proglucagon and the origin of glucagon-like peptides.";
RL   Mol. Biol. Evol. 16:1548-1557(1999).
RN   [2]
RP   SEQUENCE OF 43-71 AND 82-113.
RC   TISSUE=INTESTINE;
RX   MEDLINE=94010172; PubMed=8405897;
RA   Conlon J.M., Nielsen P.F., Youson J.H.;
RT   "Primary structures of glucagon and glucagon-like peptide isolated
RT   from the intestine of the parasitic phase lamprey Petromyzon
RT   marinus.";
RL   Gen. Comp. Endocrinol. 91:96-104(1993).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; AF159707; AAF09186.1; -.
DR   HSSP; P01275; 1BH0.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family.
FT   SIGNAL       1     22       POTENTIAL.
FT   PEPTIDE     43     71       GLUCAGON.
FT   PEPTIDE     82    113       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE    130    160       GLUCAGON-LIKE PEPTIDE 2.
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SQ   SEQUENCE   160 AA;  18042 MW;  9A52C530D5A74072 CRC64;

  Query Match          70.8%;  Score 102;  DB 13;  Length 160;
  Best Local Similarity   53.6%;  Pred. No. 1.4e-07;
  Matches   15;  Conservative   11;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||:||||:|::|||: :||::|::|| :
Db      82 HADGTFTNDMTSYLDAKAARDFVSWLAR 109


RESULT 11
Q9DDE6
ID   Q9DDE6      PRELIMINARY;      PRT;   121 AA.
AC   Q9DDE6;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Glucagon polyprotein.
GN   GCG OR GLU.
OS   Brachydanio rerio (Zebrafish) (Zebra danio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99425190; PubMed=10495291;
RA   Argenton F., Zecchin E., Bortolussi M.;
RT   "Early appearance of pancreatic hormone-expressing cells in the
RT   zebrafish embryo.";
RL   Mech. Dev. 87:217-221(1999).
DR   EMBL; AJ133697; CAC20108.1; -.
DR   HSSP; P01274; 1GCN.
DR   ZFIN; ZDB-GENE-010219-1; gcg.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Polyprotein.
FT   CHAIN        49     79       GLUCAGON.
FT   CHAIN        88    121       GLUCAGON-LIKE PEPTIDE 1.
SQ   SEQUENCE   121 AA;  13537 MW;  A85385F690DA180F CRC64;

  Query Match          68.1%;  Score 98;  DB 13;  Length 121;
  Best Local Similarity   73.1%;  Pred. No. 4.2e-07;
  Matches   19;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWL 26
           |||||:||||||||: |||: |:| |
Db      88 HAEGTYTSDVSSYLQDQAAQRFVARL 113


RESULT 12
Q9PRW9
ID   Q9PRW9      PRELIMINARY;      PRT;    62 AA.
AC   Q9PRW9; Q9PRX0; Q9PRW8;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Glucagon precursor [Contains: glucagon-29; glucagon-33; glucagon-like
DE   peptide] (Fragments).
OS   Scyliorhinus canicula (Spotted dogfish) (Spotted catshark).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Chondrichthyes;
OC   Elasmobranchii; Galeomorphii; Galeoidea; Carcharhiniformes;
OC   Scyliorhinidae; Scyliorhinus.
OX   NCBI_TaxID=7830;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=PANCREAS;
RX   MEDLINE=94286411; PubMed=8015974;
RA   Conlon J.M., Hazon N., Thim L.;
RT   "Primary structures of peptides derived from proglucagon isolated from
RT   the pancreas of the elasmobranch fish, Scyliorhinus canicula.";
RL   Peptides 15:163-167(1994).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone.
FT   PEPTIDE       1     29       GLUCAGON-29.
FT   PEPTIDE       1     33       GLUCAGON-33.
FT   NON_CONS     33     34
FT   PEPTIDE      34     62       GLUCAGON-LIKE PEPTIDE.
SQ   SEQUENCE   62 AA;  7270 MW;  C5FF487C12C69CD1 CRC64;

  Query Match          66.0%;  Score 95;  DB 13;  Length 62;
  Best Local Similarity   55.6%;  Pred. No. 5.6e-07;
  Matches   15;  Conservative    7;  Mismatches    5;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
           |:|||||| | |:: : ||:|: ||:
Db       1 HSEGTFTSDYSKYMDNRRAKDFVQWLM 27


RESULT 13
Q9DG43
ID   Q9DG43      PRELIMINARY;      PRT;    96 AA.
AC   Q9DG43;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Proglucagon (Fragment).
OS   Ambloplites rupestris.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes; Percoidei;
OC   Centrarchidae; Ambloplites.
OX   NCBI_TaxID=109273;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Al-Mahrouki A.A., Irwin D.M., Youson J.H.;
RT   "Rock Bass Proglucagon.";
RL   Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF190499; AAG16778.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; UNKNOWN_1.
FT   NON_TER       1      1
FT   CHAIN         1    >29       GLUCAGON.
FT   CHAIN        39    >70       GLUCAGON-LIKE PEPTIDE 1.
FT   CHAIN        86    >96       GLUCAGON-LIKE PEPTIDE 2.
FT   NON_TER      96     96
SQ   SEQUENCE   96 AA;  11225 MW;  6435033EBDDC00CE CRC64;

  Query Match          61.1%;  Score 88;  DB 13;  Length 96;
  Best Local Similarity   51.9%;  Pred. No. 1.1e-05;
  Matches   14;  Conservative    9;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
           |::||||:| ::||| : |::|| ||:
Db       1 HSQGTFTNDYTNYLEDRQAQDFIRWLM 27


RESULT 14
Q9PUR0
ID   Q9PUR0      PRELIMINARY;      PRT;   120 AA.
AC   Q9PUR0;
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DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Glucagon II precursor [Contains: Glucagon; glucagon-like peptide
DE   (GLP)].
OS   Petromyzon marinus (Sea lamprey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Hyperoartia;
OC   Petromyzontiformes; Petromyzontidae; Petromyzon.
OX   NCBI_TaxID=7757;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=INTESTINE;
RX   MEDLINE=20022986; PubMed=10555286;
RA   Irwin D.M., Huner O., Youson J.H.;
RT   "Lamprey proglucagon and the origin of glucagon-like peptides.";
RL   Mol. Biol. Evol. 16:1548-1557(1999).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; AF159708; AAF09187.1; -.
DR   HSSP; P01275; 1BH0.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123;.hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family.
FT   SIGNAL       1      ?       POTENTIAL.
FT   PEPTIDE     44     72       GLUCAGON.
FT   PEPTIDE     89    120       GLUCAGON-LIKE PEPTIDE.
SQ   SEQUENCE   120 AA;  13397 MW;  FBDE667B96E198D8 CRC64;

  Query Match             57.6%;  Score 83;  DB 13;  Length 120;
  Best Local Similarity   48.1%;  Pred. No. 8.1e-05;
  Matches   13;  Conservative    9;  Mismatches    5;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
          |::|:|||| | :|: : ||:|: ||:
Db     44 HSQGSFTSDYSKHLDVKQAKDFVTWLL 70


RESULT 15
Q9CVF1
ID   Q9CVF1      PRELIMINARY;      PRT;   130 AA.
AC   Q9CVF1;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Gastric inhibitory polypeptide (Fragment).
GN   GIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=SMALL INTESTINE;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK008525; BAB25720.1; -.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:107504; Gip.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER      1      1
SQ   SEQUENCE   130 AA;  14906 MW;  95B3B6E91E2A7992 CRC64;

  Query Match             41.0%;  Score 59;  DB 11;  Length 130;
  Best Local Similarity   40.7%;  Pred. No. 0.41;
  Matches   11;  Conservative    7;  Mismatches    9;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
          :|||||  || |  ::    ::|: ||:
Db     30 YAEGTFISDYSIAMDKIRQQDFVNWLL 56


Search completed: March 19, 2003, 12:11:33
Job time : 31 secs
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